VOL. XLVIII. No. 1 JANUARY 1963

MECCANO MAGAZINE

1/3

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For '00' gauge railways

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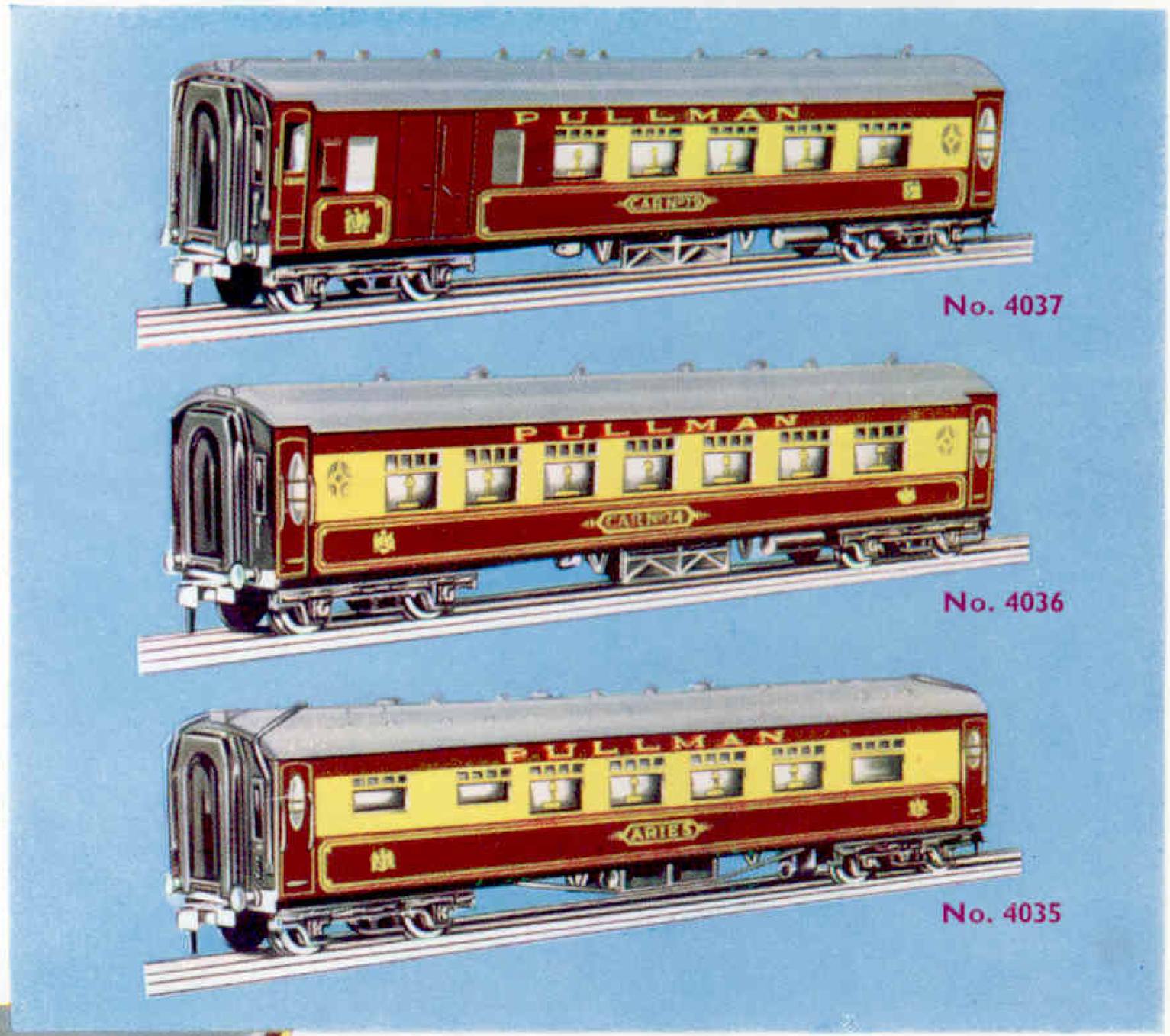
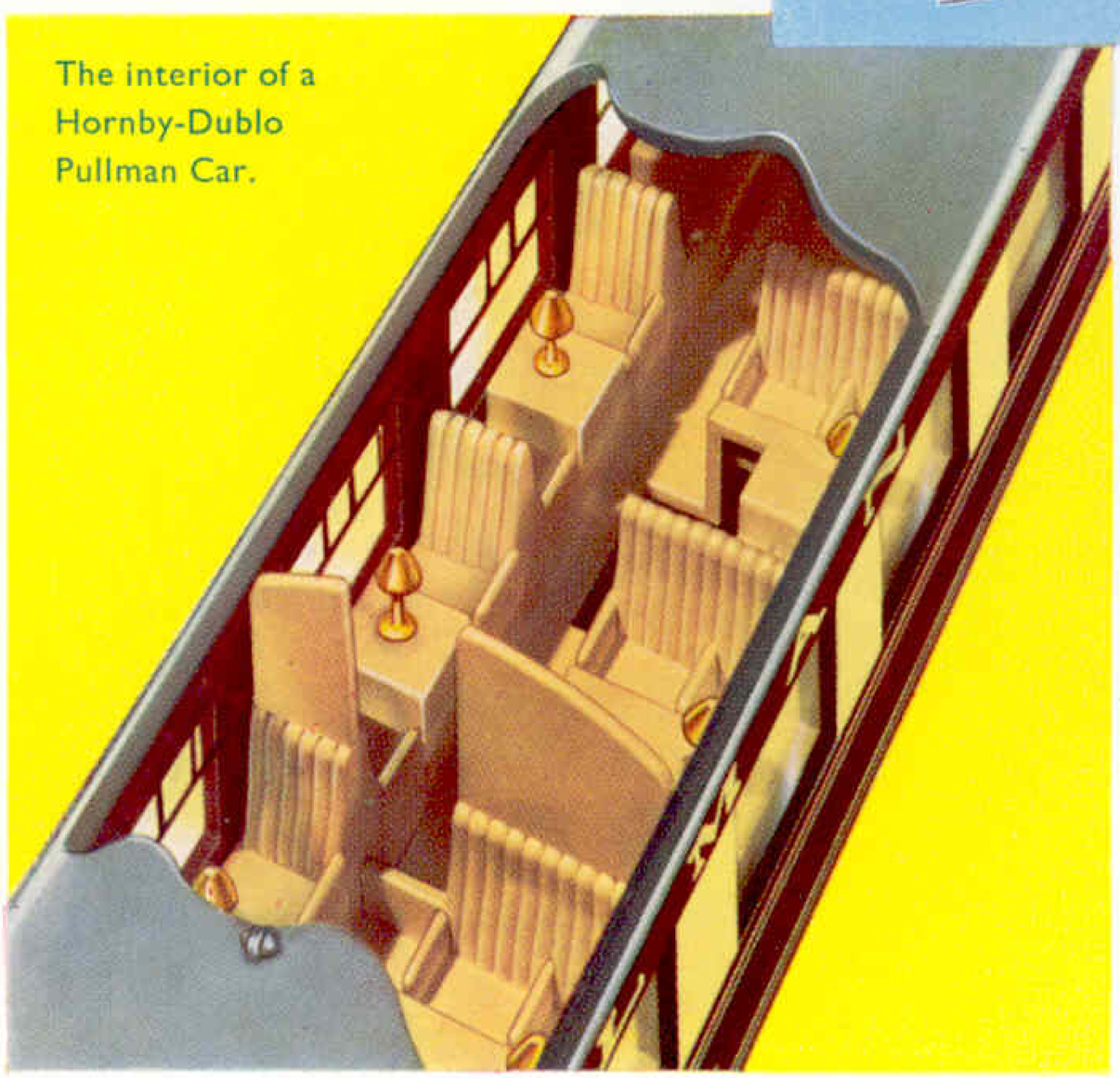
Each car—there is a first class, second class and a Brake/2nd—is painted in the Pullman livery and carries the name of the real car.





The interior of a Hornby-Dublo Pullman Car.

4037 Pullman Car Brake/2nd. U.K. Price **18/6**
Length 9¾ in.

4036 Pullman Car 2nd Class. U.K. Price **18/6**
Length 9¾ in.

4035 Pullman Car 1st Class. U.K. Price **18/6**
Length 9¾ in.

Hornby DUBLO

MADE BY MECCANO LIMITED

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TRADE MARK REGISTERED

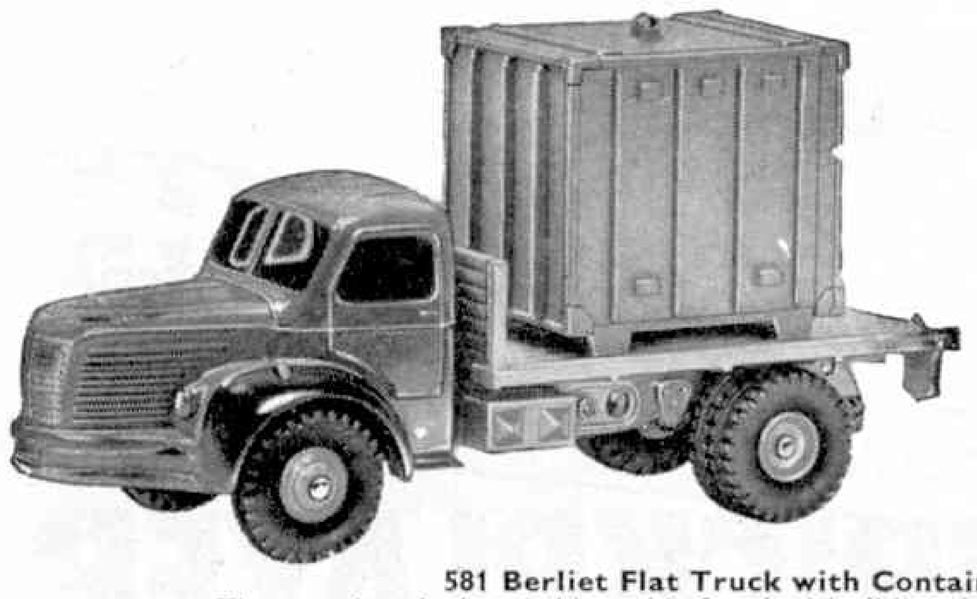
from PARIS

A separate range of Dinky Toys is made by Meccano (France) in Paris. Several of these French miniatures have been imported into the U.K., and some of them are illustrated here. Ask your Dinky Toys dealer to show you the full range.

561 Citroen Delivery Van. Length 3 $\frac{8}{16}$ in.
U.K Price **5/5**

555 Ford Thunderbird. Length 4 $\frac{11}{16}$ in.
U.K. Price **7/8**

550 Chrysler Saratoga. Length 5 $\frac{1}{16}$ in.
U.K. Price **7/8**



581 Berliet Flat Truck with Container
The container is detachable and is fitted with sliding door.
Length 4 $\frac{13}{16}$ in. U.K. Price **8/11**

LOADS FOR YOUR LORRIES

Here are some fascinating accessories from our Works in France. They may be used most realistically with Dinky Toys lorries and wagons, and with Hornby-Dublo electric trains. They are made in plastic, and the cases are splendid imitations of wooden packing cases, one side of which is removable. The barrels consist of two halves which can be fastened together and opened by pressing a small "bung" in the centre, and the bottles may be removed from the containers in which they are placed.

846

847

849

850

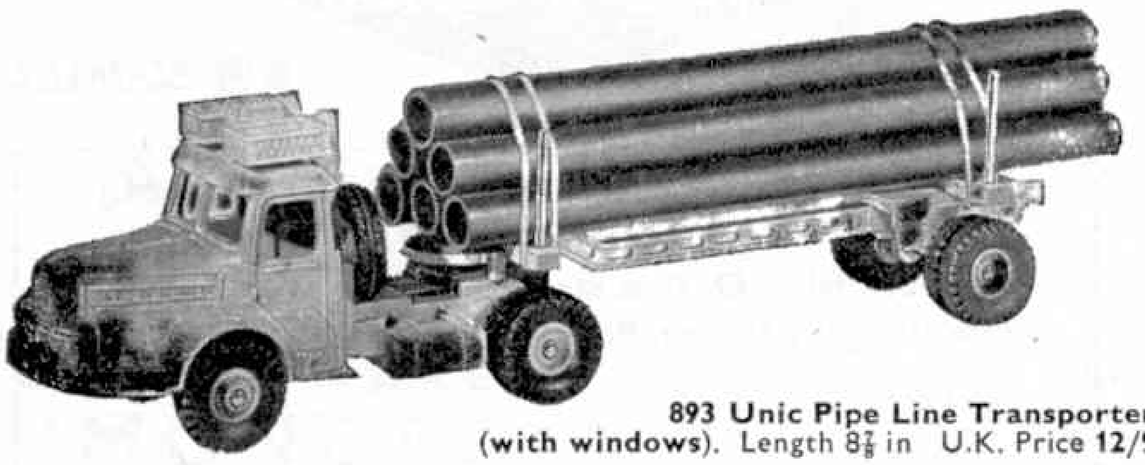
846 Oil Drums
(pack of six)
U.K. Price **1/4**

847 Barrels
(pack of six)
U.K. Price **1/4**

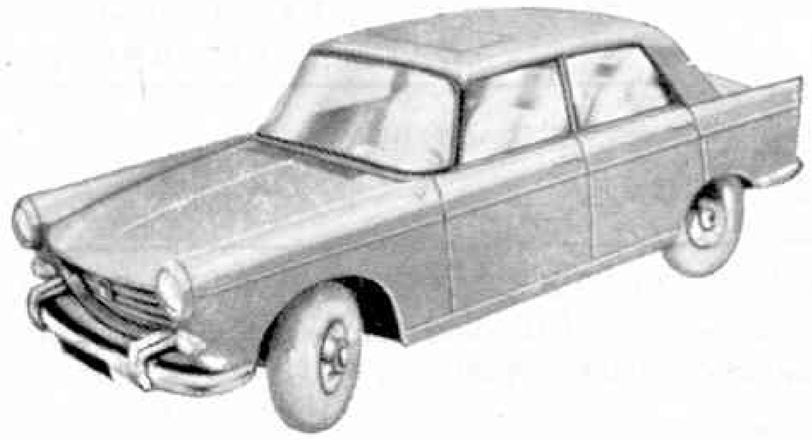
849 Packing cases
(pack of six)
U.K. Price **1/4**

850 Crates of bottles
(pack of six)
U.K. Price **1/4**

851 Set of 2 each Nos. 846, 847, 849 & 850 (pack of eight)
U.K. Price **1/9**



893 Unic Pipe Line Transporter
(with windows). Length 8 $\frac{7}{8}$ in U.K. Price **12/9**



553 Peugeot 404. Length 4 $\frac{1}{16}$ in.
U.K. Price **5/11**

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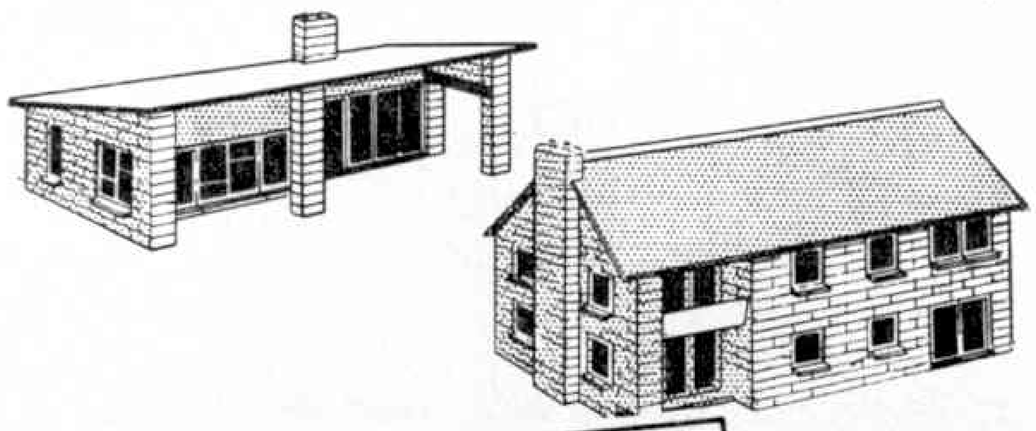

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Address .....

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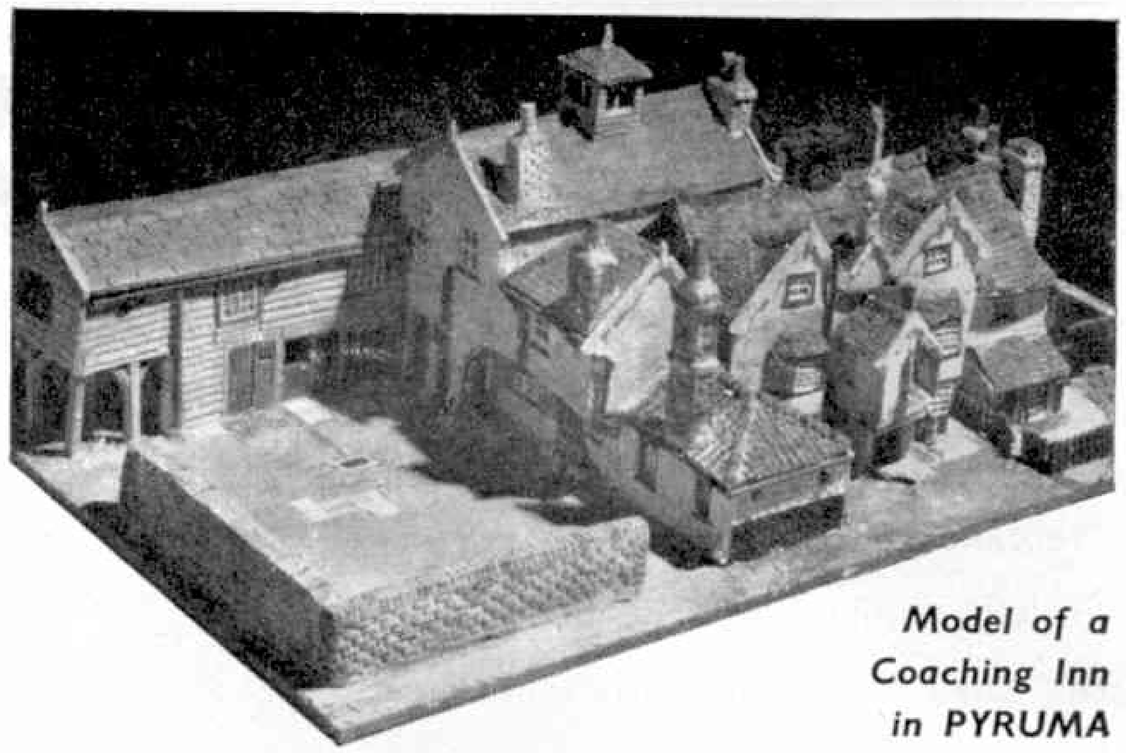

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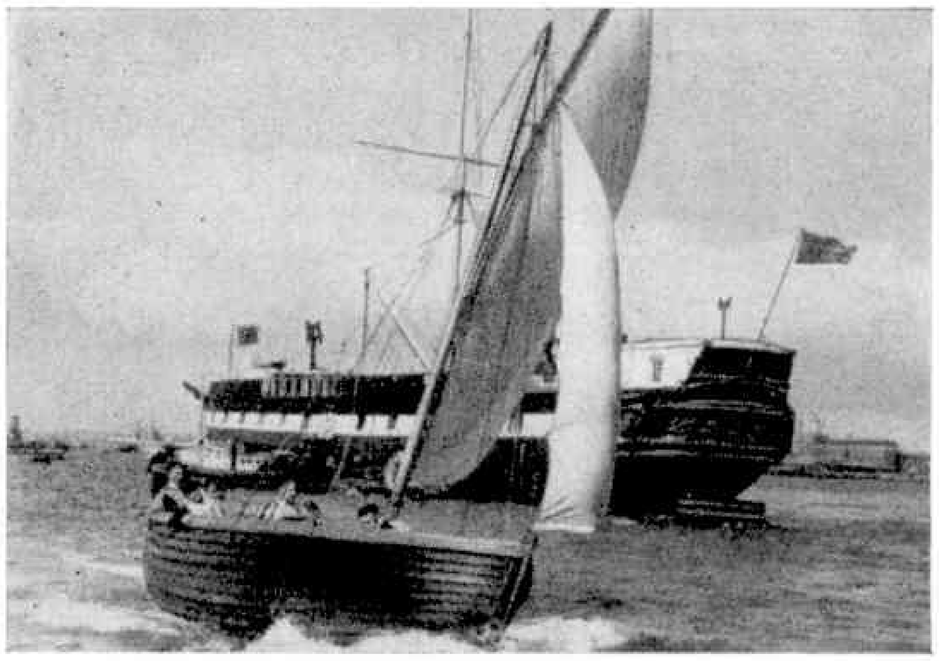

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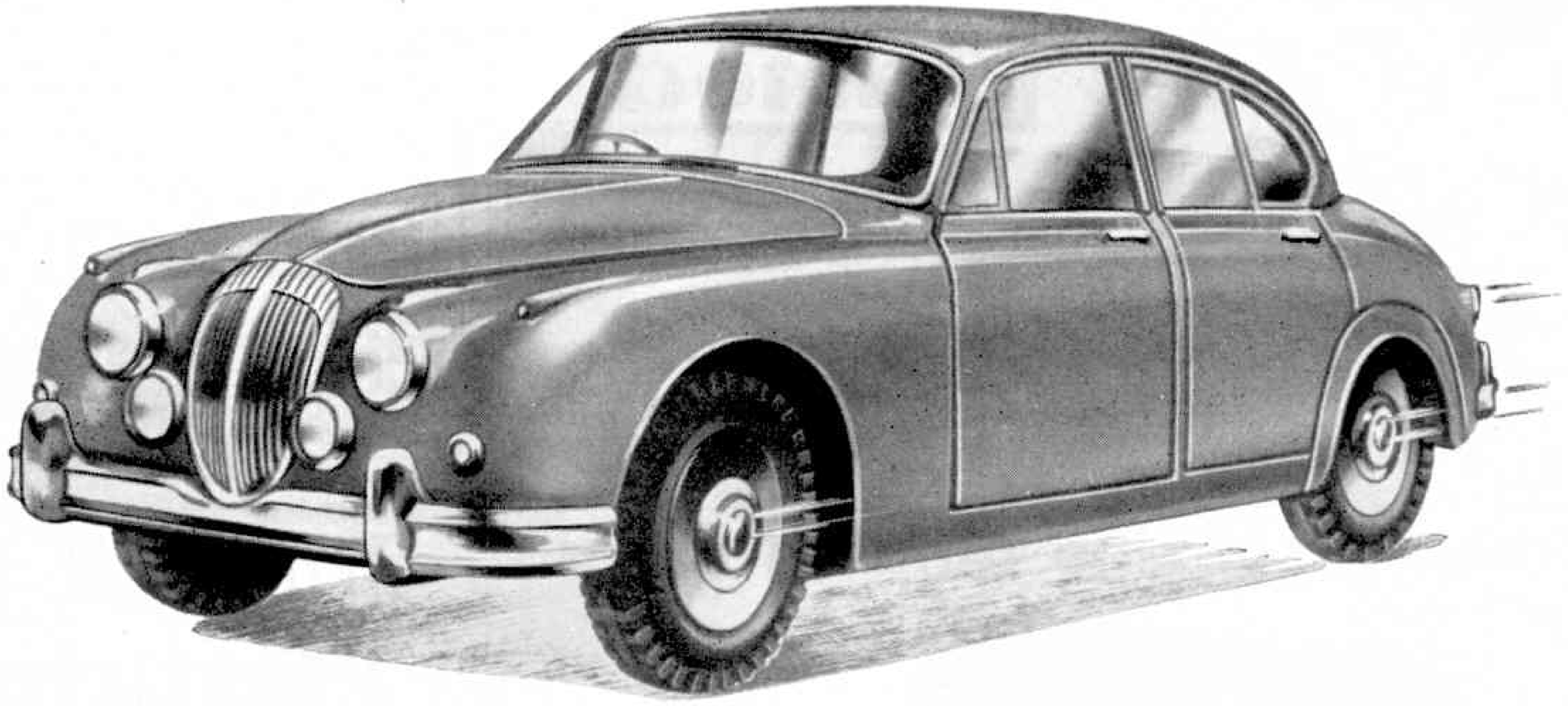

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DINKY TOYS

TRADE MARK REGISTERED

MADE BY MECCANO LIMITED

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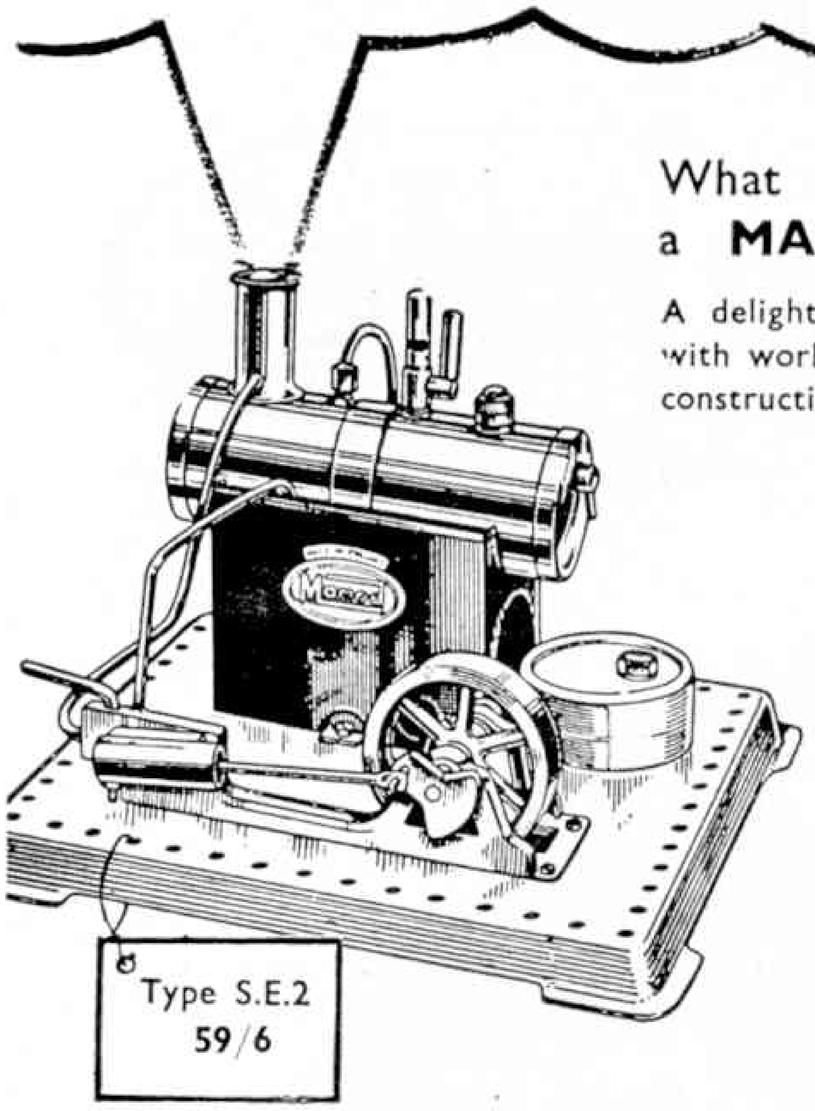

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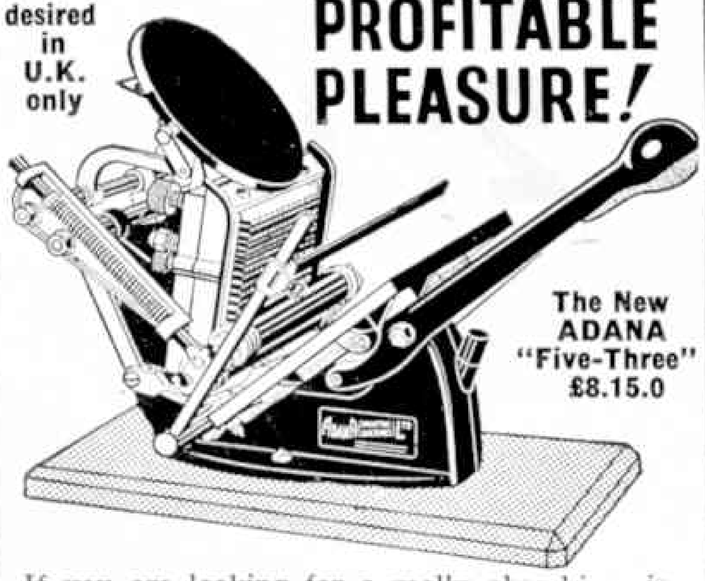

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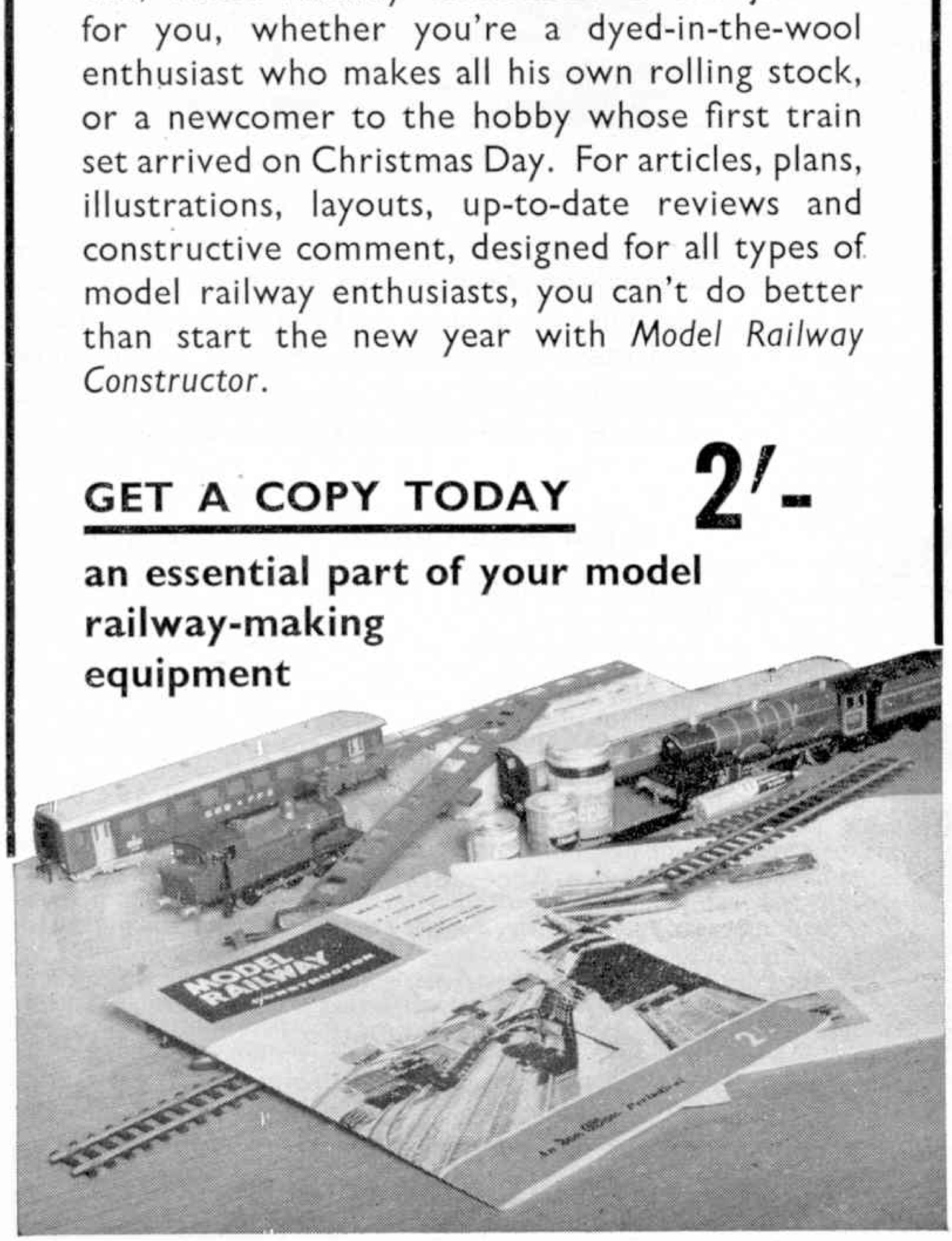

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listing and describing all locomotives

Pts. 1/2 Western and Southern	2/6
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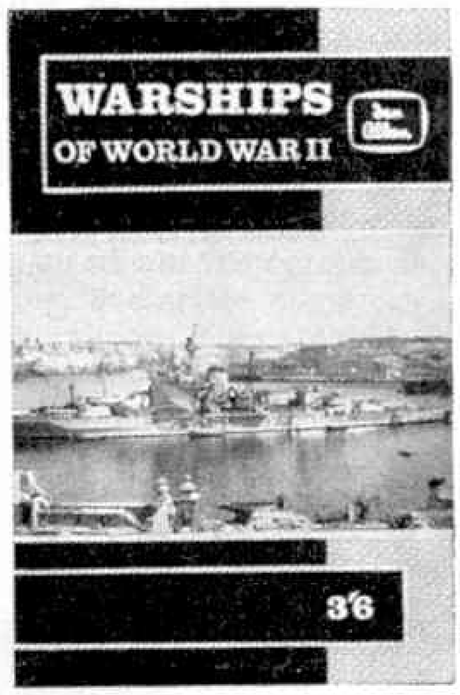

abc MODEL RAILWAYS 2/6

See the complete range of IAN ALLAN Books on Stand 31 at the Schoolboy's Own Exhibition, Olympia, 28th Dec. 1962–12th Jan. 1963.

TRAINS ANNUAL 1963	10/6
AIRCRAFT ANNUAL 1963	12/6
LOCOSPOTTERS' ANNUAL 1963	7/6
AIRCRAFT THE WORLD OVER	15/–
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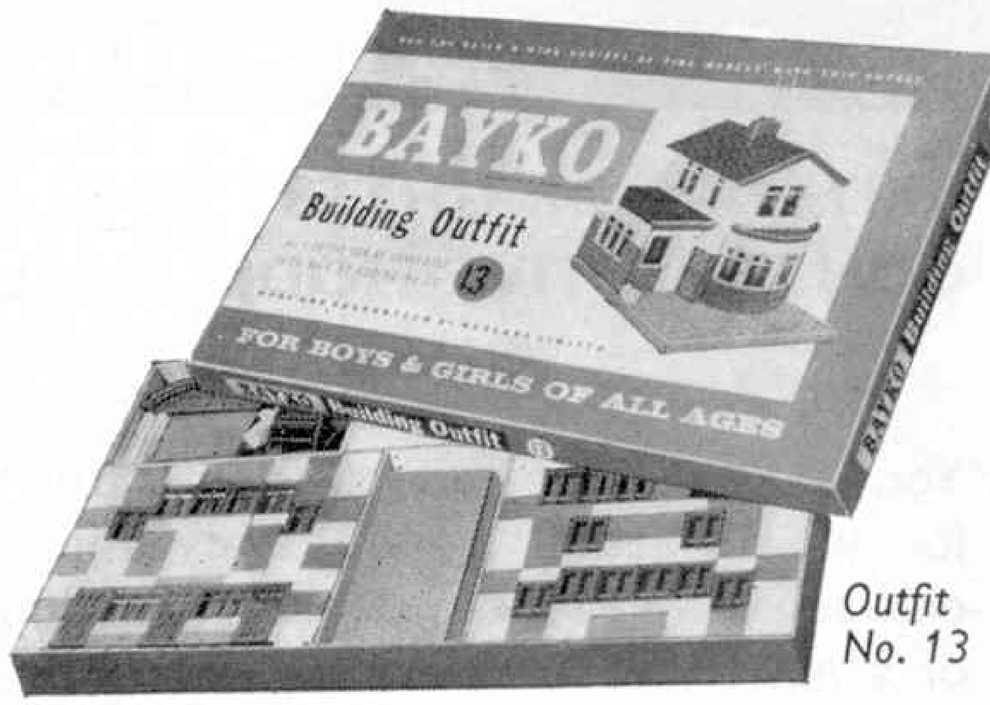
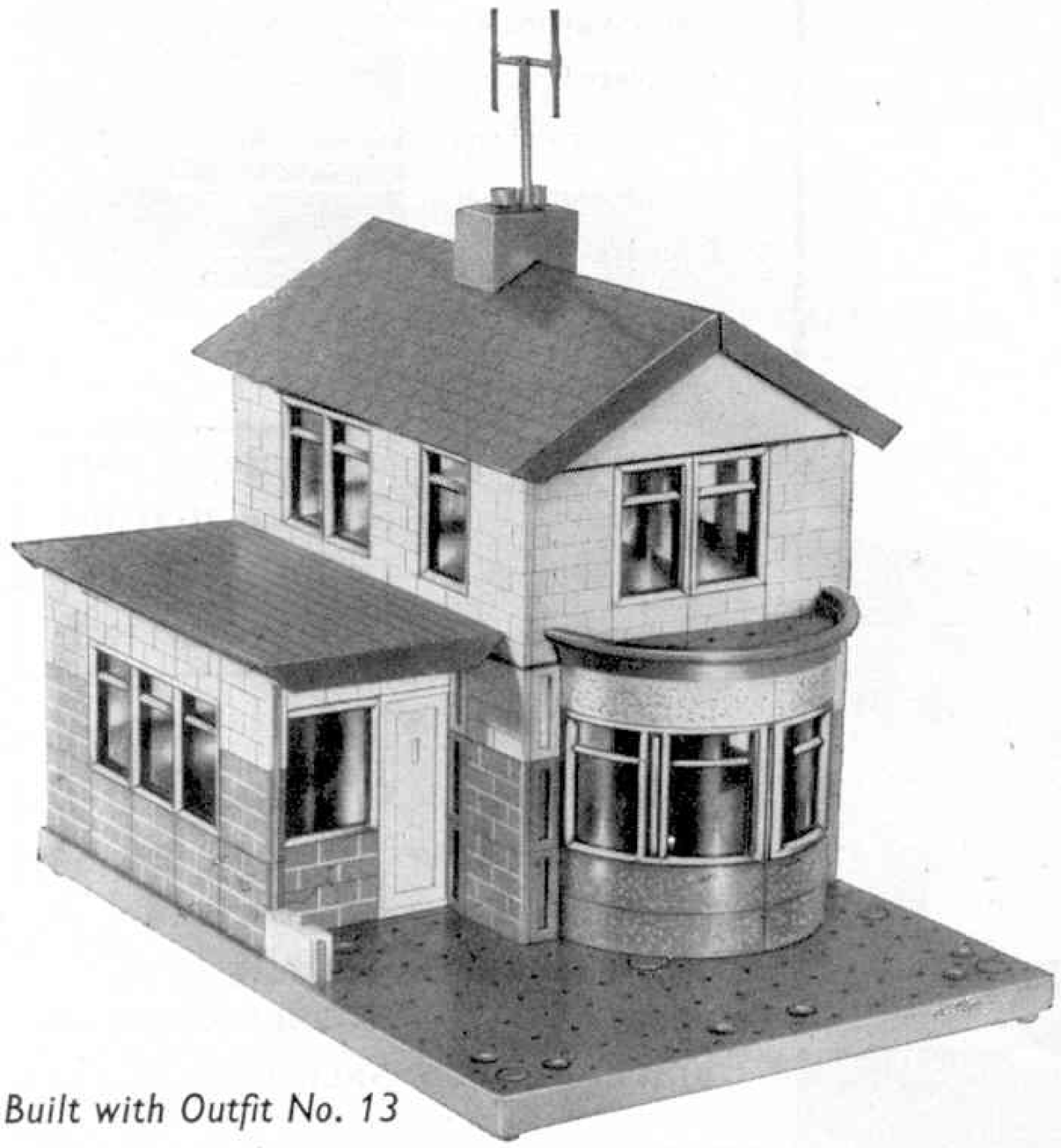


Outfit No. 13



Built with Outfit No. 13

It adds greatly to the fun and interest of the hobby to be able to purchase spare parts separately, a few at a time, or in small packs of assorted parts, to build these attractive larger models. Most Bayko dealers stock spare parts. Model builders unable to get spares should write to Meccano Limited.

Bayko Main Outfits	**£**	**s.**	**d.**
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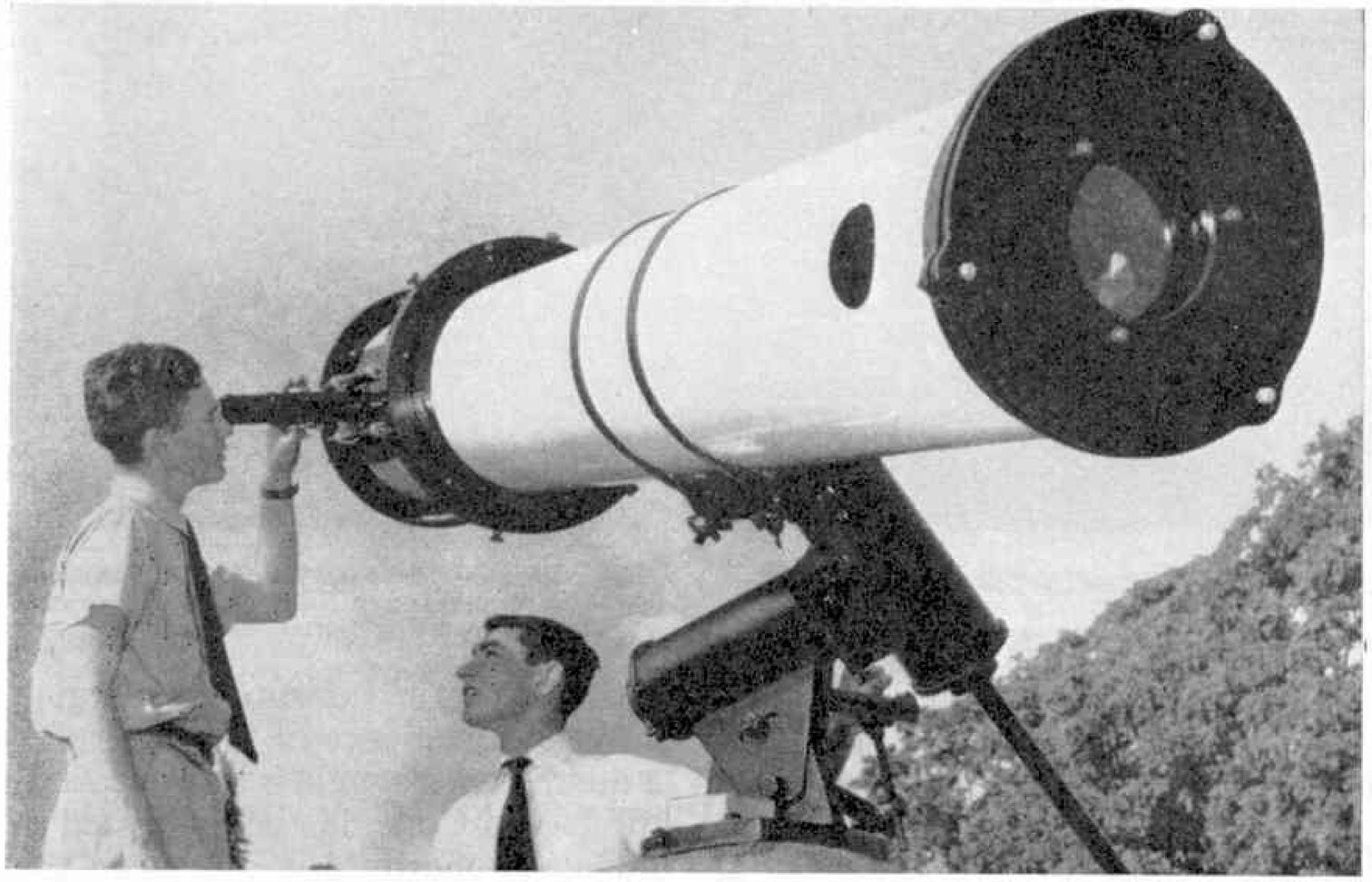
MECCANO MAGAZINE

Volume XLVIII No. 1 January 1963



DO you not find it amazing how the year rushes to a close once the end of September is reached? You have the golden glow of chrysanthemums, the rich russets of the falling leaves, the thrills and bangs of Bonfire Night and that dank, heavy smell which is the aftermath; the army of shop window dressers putting in the Christmas displays, the first carol singers, Christmas itself—which is over in a flash—and lo and behold, you find yourself on the threshold of another year. And so the old year dies, with its memories of all the things you have done and, much more to the point, all the things you have *not* done; all the plans to which you aspired—and all the dreams that vanished in smoke.

A New Year has something wholesome about it—a promise of fulfilment as yet unimpaired by any shadow of disappointment. Yes, the New Year is important to everybody. It brings a new outlook, another chance, a challenge. I hope that in the year just begun all those of you who possess ambition—and I am sure *M.M.* readers are filled with that admirable quality—will find that your hopes mature into something solid and substantial by which you can measure your progress. At school, at work, on the sports field, you will doubtless have plans for the future. It is my earnest hope, and that of the staff of the *M.M.*, that through your own good efforts you obtain success in all you seek to achieve.

The *M.M.* itself goes marching on, and we shall hope to continue in 1963 most of the features that have been so popular in the preceding twelve months. *Road and Track*, by our popular motoring contributor Jerry Ames, will appear more frequently—present plans are that it will appear monthly—and Ernest Argyle's thematic notes on stamps have left the realms of railways and will cover stamps which deal with ships and shipping.

Our picture this month shows a giant astronomical telescope, the first of its kind in the Federation of Rhodesia and Nyasaland, which won the annual Schools Prize for 1962 in a contest sponsored by the Rhodesia Scientific Association. The telescope, which is eight feet long, was constructed by the Astronomy Club of the Prince Edward School, at Salisbury. The Schools Prize can be competed for either as a group effort or by individual pupils and the winning effort of Prince Edward School was a group entry. It is a fine example of the way in which modern youth can apply its talents to creative work.

THE EDITOR

Next Month: A BALTIC BIRD SANCTUARY

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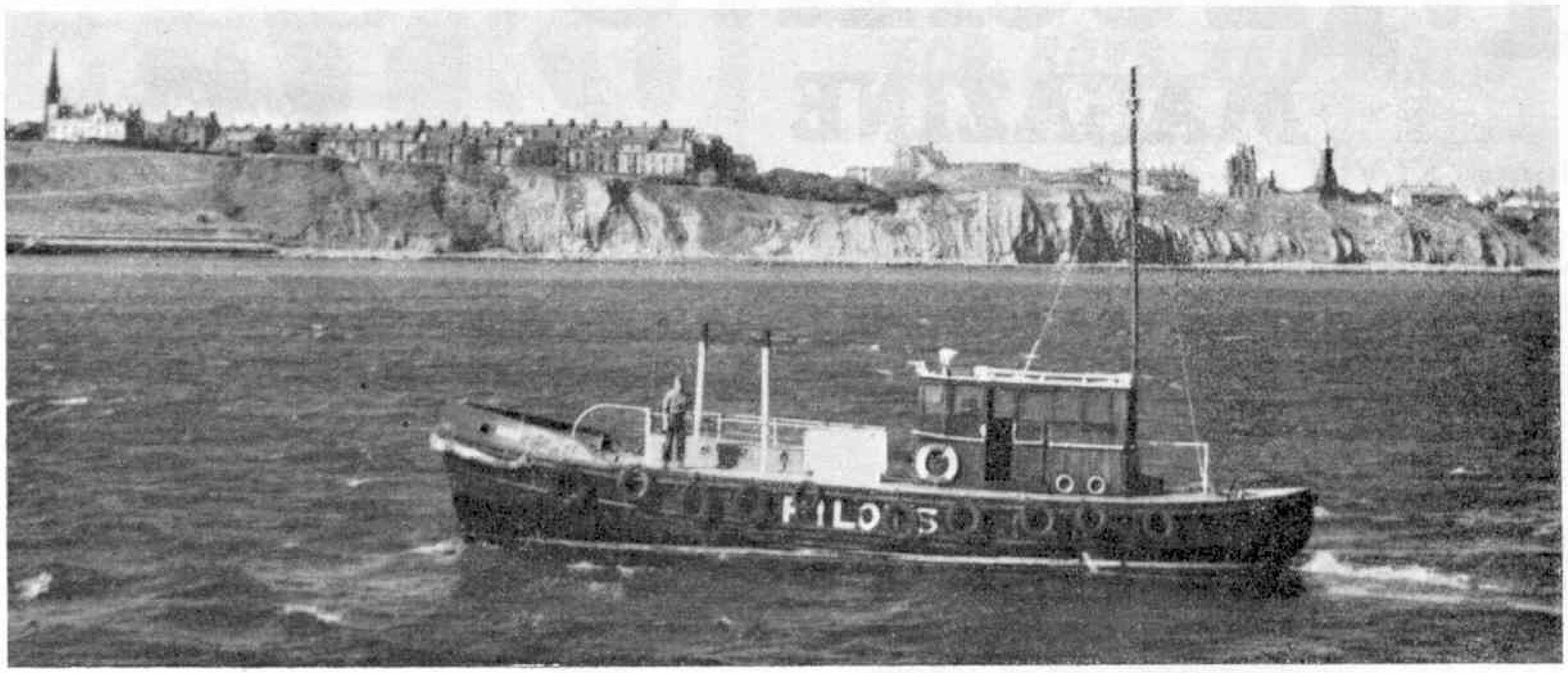
OUR FRONT COVER

Our cover this month, prepared from a B.R. Eastern Region official photograph, shows The West Riding, *one of the numerous expresses between London, King's Cross, and Yorkshire. Its down journey includes a start-to-stop run of 106¾ miles, from Hitchin to Retford, in 89 minutes, giving an average speed of nearly 72 m.p.h., which makes it one of the fastest trains in Britain. In our picture the up train is leaving Leeds, headed by No. 9012* Crepello, *one of the powerful Type 5 diesel-electric locomotives, providing the quickest, three-hour, service to King's Cross. Hornby-Dublo enthusiasts will be proud to see this engine on the cover, as it is the prototype of the Co–Co Deltic Locomotive in Two-Rail form.*

A PILOT'S LIFE ON THE TYNE



A pilot cutter on the Tyne. The town of Tynemouth forms the background. All the pictures illustrating this article are by courtesy of the author.

• Ninety-four pilots see to it that big ships move safely on one of Britain's busiest waterways. This article describes the way in which they go about their important and responsible duties.

By JEREMY NORTH

THE 16,000-ton tanker, ploughing through a moderate sea off the north-east coast of England, at a steady 13 knots, was expected off the mouth of the Tyne several hours before she actually hove to and waited until there was sufficient water for her to move upriver. She was ballasted with water, for the rich oil she had borne from Kuwait had been discharged at the Isle of Grain. Now her massive, rusted bulk was to lie in the Tyne for survey and overhaul.

Even while she was still far down the coast, the tanker's expected arrival was common knowledge in the look-out used by the Tyne pilots, for advance notice had been given by the company's agent.

Now, with the great ship lying nearly two miles off the long piers, a pilot leaves the look-out and walks to the waterside, three minutes away, where a 56-foot motor cutter with a diesel engine is moored. Stepping aboard, he nods to the vessel's master, and to an A.B. and the apprentice pilot who form her crew; then the ropes are cast off and the craft heads seawards. She throbs with the power of her engine and the turbulence of the water, for a north-easterly gale is blowing, and the North Cone has been hoisted at the coastguard look-out near the ruins of Tynemouth Priory.

Now the tide is right for the tanker to enter the Tyne. The anchors are raised, and the great ship turns to take the sea and wind almost broadside on, while the pilot cutter slips into the comparatively calm water on the lee side, ready to pass on the particular pilot who will take her to moorings high up the busy river. A ladder of rope and wood drops down the tanker's side, a distance of some 30 feet, and dangles restlessly as the ship rolls. The cutter approaches by the stern, and runs alongside until the speed of the two vessels is identical.

The pilot's task is now to step from the

The vessel "Sir William Walker" seen entering the river. One of the Tyne's ninety-four river pilots is on board.

deck of the cutter to the ladder—not an easy job in such a sea. He notes how both craft are rolling, and his eyes focus on the ladder draped down the rusted "cliff". The cutter rises on a wave, and when the wave is at its peak the pilot leaps for the ladder, grasping it firmly as the cutter pulls away. A few months ago one Tyne pilot had both ankles broken when, reaching the ladder, he had the superstructure of the cutter crash into him.

The transfer is successful and the pilot mounts the steps to the bridge. His keen eyes take in the state of the sea and the river, the direction of the wind, and the rocky coastline. He will advise the tanker's master to approach from the north at an angle of 45 degrees to the mouth of the river. He knows that passing between the piers will be a tricky job, when the sea is attempting to push the ship against the south pier. Speed and timing will be important. When half the ship is through, the sea pushes the stern part and the tanker is in the channel.

Away on the starboard bow are the Black Middens, rough-edged rocks on which many fine vessels have grounded, especially in the days of sail. The monument to Collingwood looms above the cliff at Tynemouth; to port is the groin, with its bell tower. Buoys sway and bob as they mark the channel.

Not only the pilots have been aware of the tanker's approach, for there has been a bustle among the tugboatmen. Four tugs are needed to see the tanker to her moorings. One tug is now chasing her, and a heaving line—a light rope, almost like a clothes line, but with a ball end to provide extra weight—is thrown to the tanker. A towing line has already been prepared by the second mate and A.B.s; this is fastened to the heaving line and hauled in by the tug, which carries a hook over which it is slipped. The tug swings round and allows herself to be towed astern, engines "slow ahead" to act as a brake. A tug has also been tied up "forrard."

The tanker's speed is between three and four knots, and the pilot concentrates on keeping the ship in the centre of the channel and on making sure that the tugs are fast. He uses loud-hailer and the ship's siren to pass on instructions to the tugs, which have now been joined by two others, so that there are now two tugs ahead and two aft.

The bridge rings down to the engine room the command "Dead Slow Ahead." In the distance can be heard the hooter of a 4,000-ton collier which is coming down the river. The pilot replies, to let the collier know of the tanker's presence, and the tugs and the ship's helm together move the tanker further to the right of the river.

Then comes a complication. The strong wind has caught the tanker, tending to force her over towards the collier. The tanker is sheering, which means that she is not answering to the helm. It is a bad sheer, so the anchors are released, the chains rattling loudly as they are paid out amid a shower of rust. Thus the ship is checked, with extra help from the engines and those of the tugs. The collier and escorting tugs slip quickly by. Now, control has been regained on the tanker, but her anchors are lifted just clear of the water in case there is another emergency, and, additionally, so that the crew can wash the mud from them before they are restored to their usual place.

Five miles upriver the tanker reaches the first of the several moorings she will use while in the Tyne—the tank-cleaning berth, where sludge that has accumulated in the massive tanks will be removed, avoiding the necessity of dropping it at sea.

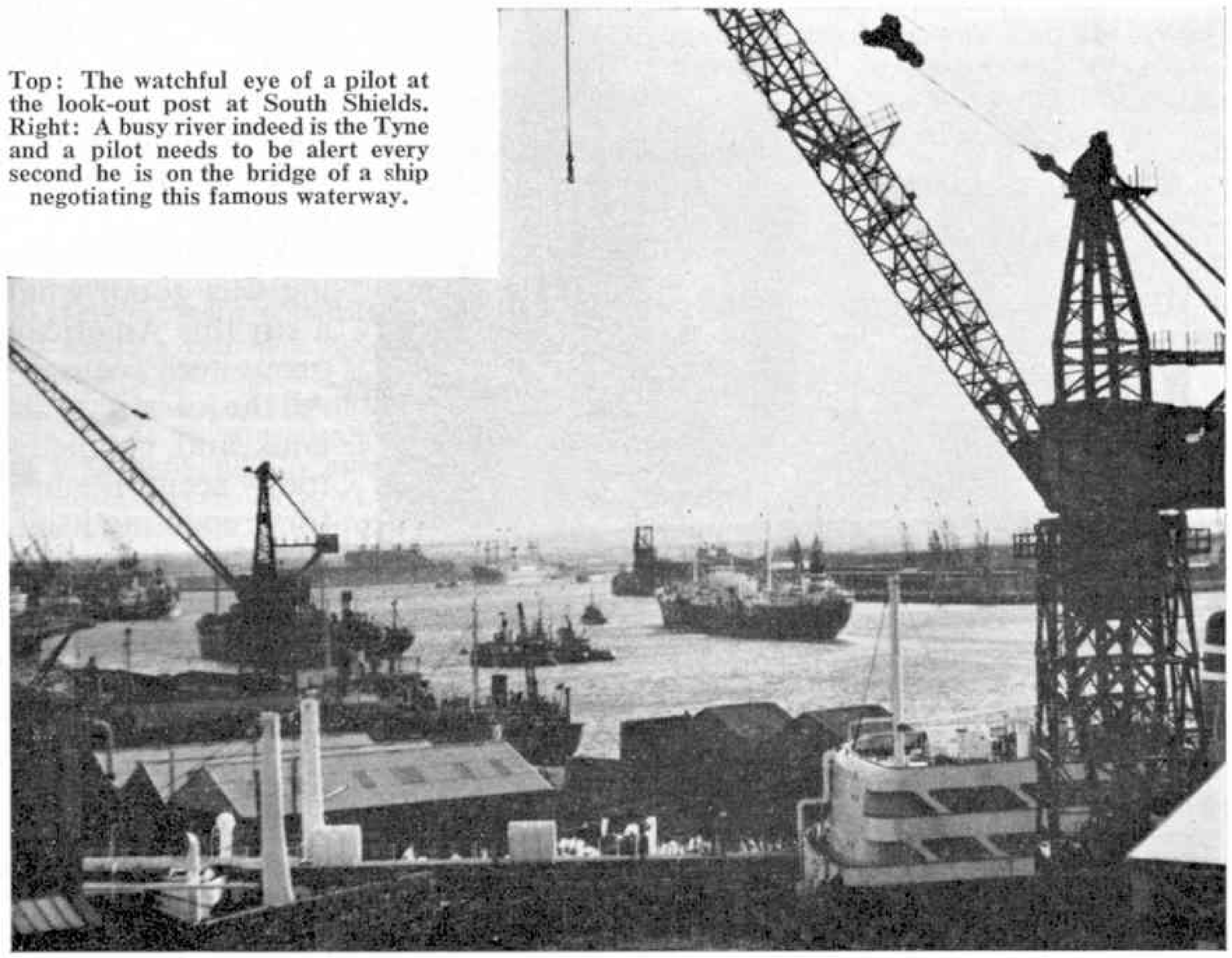
The pilot leaves the tanker and makes his way home, but while the ship is in the Tyne he will be available whenever the vessel wishes to move. Later, there will be the need to nudge the tanker gently into a dry dock for servicing, and eventually the return to the sea will be undertaken. One of the trickiest operations will be the swinging of the ship so that her bows point seawards—a far from easy job when the river's width may be only twice the length of the tanker herself.

The Tyne Pilotage Authority dates back to 1865, but for long years before that local men had been putting to sea in small sailing craft, heading for the incoming ships and offering knowledge of the river to the various masters. It is a career open only to certain local families, for it passes down from father to son. A youngster becomes an apprentice and serves in this capacity for six years, five of them in the pilot cutters and at least one at sea. Then he must wait for a vacancy in the pilot ranks.

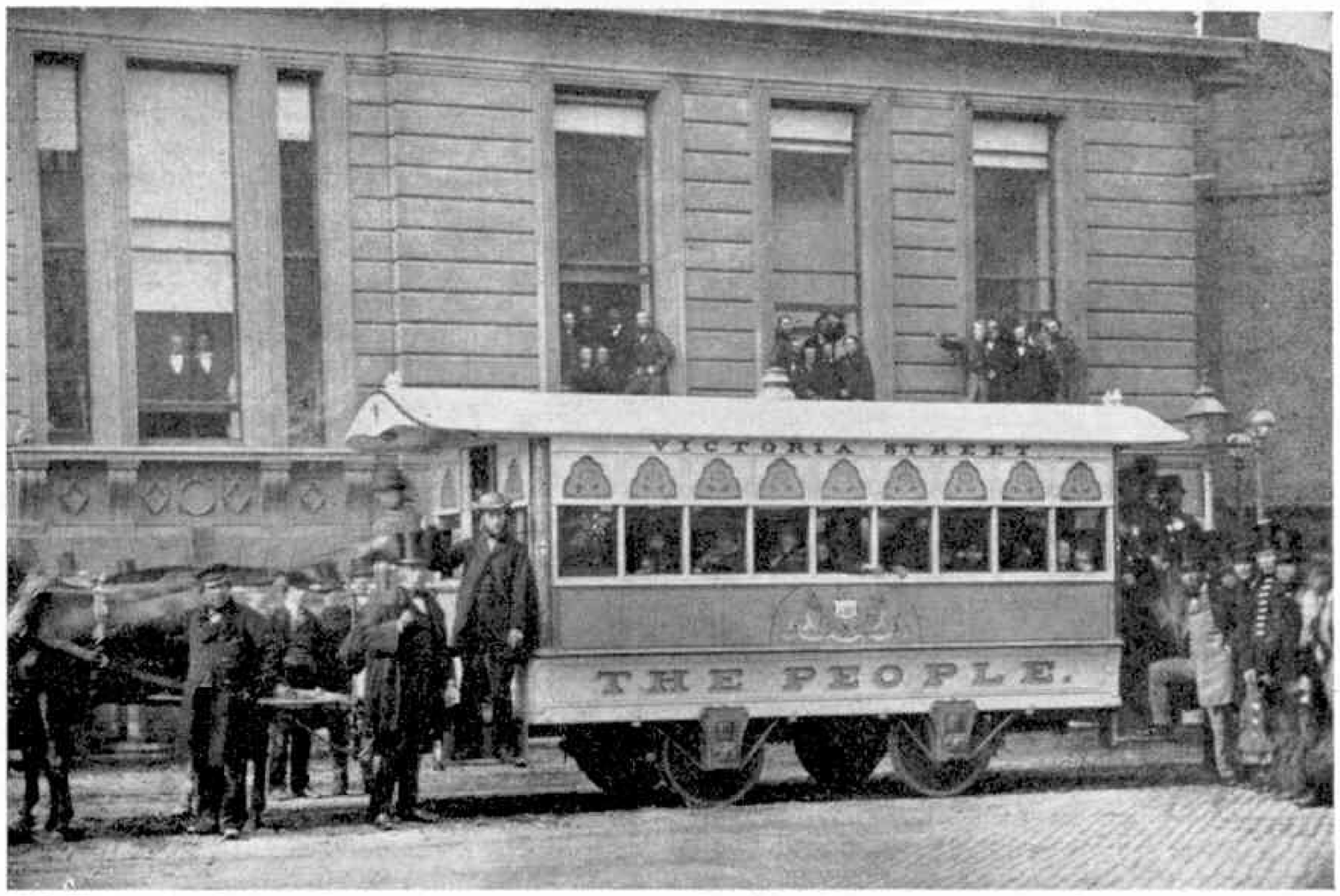
When the sun smiles on a summer's afternoon, the pilot smiles, too, as the cutter takes him quickly out to sea so that he can board an incoming vessel. But it is a different story in the early hours of a dark and icy winter's morning, when there are flurries of snow in the air and each wave is capped by white. If there is an ebb tide, and wind and sea are opposed, ships may be taking water while they are still in

(*Continued on page 46*)

Top: The watchful eye of a pilot at the look-out post at South Shields. Right: A busy river indeed is the Tyne and a pilot needs to be alert every second he is on the bridge of a ship negotiating this famous waterway.



American With A Craze For Horse-Trams



This illustration, from a photograph taken at the east end of Victoria Street, London in 1861, shows the first of George Train's trams, called "The People." This and the two other photographs reproduced with this article appear by courtesy of the London Transport Executive.

JUST 100 years ago an American schemer named George Train had to close his last London tramway by order of the Metropolitan Board of Works. On June 21, 1862, the line running from the south side of Westminster Bridge to Kennington

By

MAURICE SCHOFIELD, M.A., B.Sc.

Gate saw the last horse-drawn tram trundle along, this marking the end of George Train's struggles to convince us that "what works well in New York should succeed in London".

London as it was in the days of horse-drawn trams. This view, with the Houses of Parliament in the background, shows one of the vehicles making its way towards St. Margaret's Church.

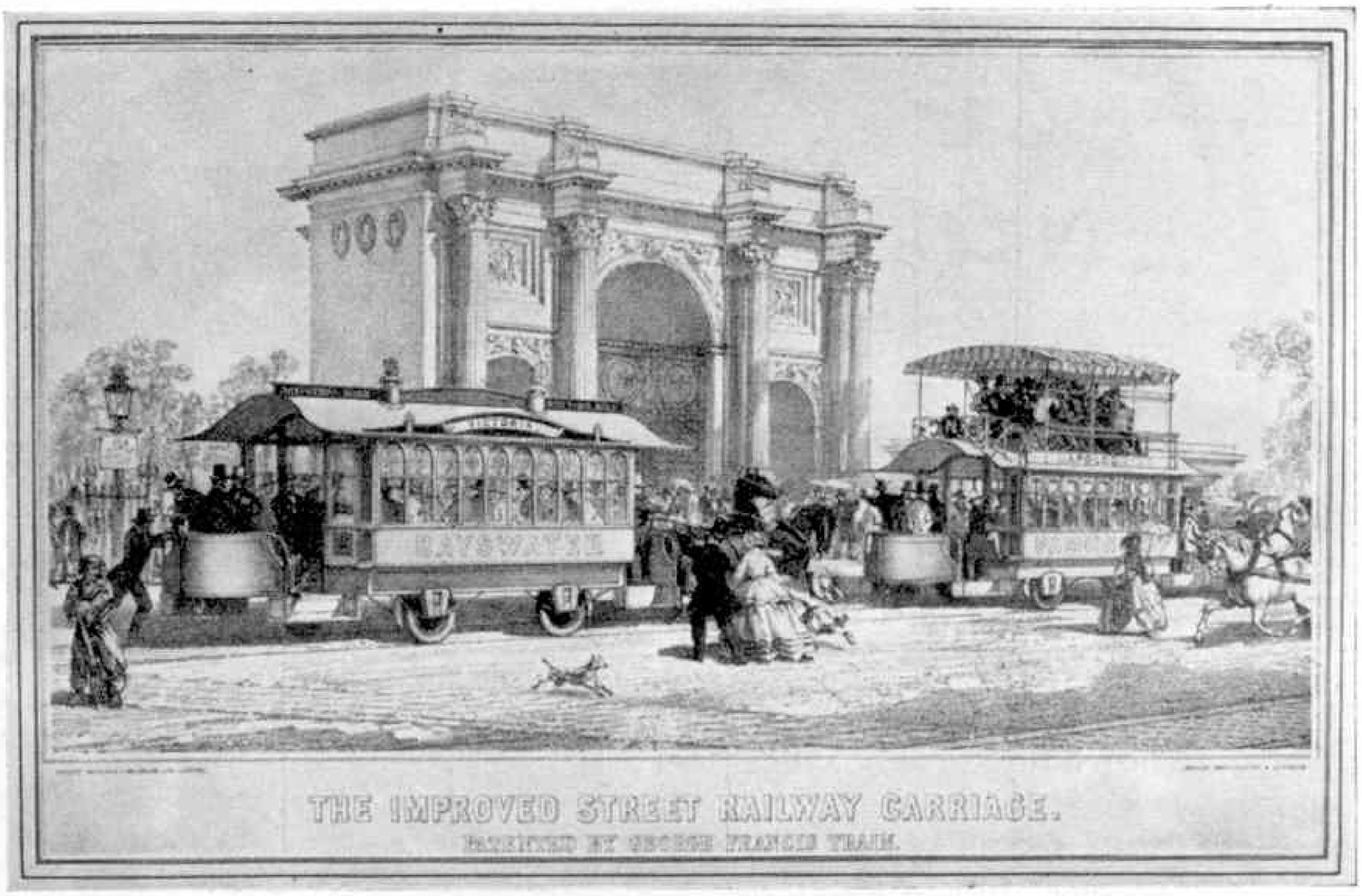
Train returned to America a bitterly-disappointed inventor, there in his native Boston to experience the final thrust when they clapped him in gaol for causing a disturbance at a public meeting.

Yet while the going was good, what a stir this American promoter caused! All the jeers at traffic jams and problems today seem like history repeating itself, especially when the recent chaos around Marble Arch came just a century after Train's laying of the Bayswater Line from Marble Arch —which also caused dislocation of traffic. The revolt of London taxi-drivers against the new mini-cabs had its likeness in the rebellion of bus drivers and cabbies against Train's cheap-fare trams. Cabbies would drive alongside the horse-trams shouting, "Vich is the vay to Vestminster?" this being a mild protest compared with the bribing of small boys to put stones on the tramway lines.

Banners and Clarion Calls

If there were no sit-down protests on the lines, there were banners proclaiming "Perseverance!" and clarion calls such as "Let's have a Queen's Highway and not Mr. Train's Highway".

This young American rivalled any American of today in advertising or boosting what he had to offer. He styled himself "The Champion Crank or Octoroon", an "Uncommon American" who was a one-time shipping clerk. He had toured the world, had written a book "The Young American Abroad", on his travels, and then arrived in Britain to champion his



An old print from the days when London's populace was riding in horse-drawn trams. The roof destination boards, at either end of the vehicle, show "Shepherd's Bush" and "Notting Hill".

street "railways", as he called them. First he gave a banquet, a "Handsome Turtle Lunch" in Piccadilly, invited the V.I.P.s such as "Merchants, Bankers and Editors", and seemed set for success when granted permission to go ahead with his trams.

Cars Had Crimson Seats

The first of these was "The People", a four-wheel car carrying 24 passengers all inside at a twopenny fare, later reduced to a penny. This tram ran between Westminster Abbey and Victoria Station, yet did not develop as expected since a larger car carrying 48 people, promised "within a few days", never appeared.

Train's second line from Marble Arch ran for six months and his third one for ten months. His cars had crimson seats and an Oriental decor, with "none of your clattering wooden boxes on wheels called omnibuses", as he claimed. His horses were fine animals, "the Bayswater Bays" as they were called, and not those "broken-down creatures" which Train said were common in London's streets. In front were drivers in striking "rifle uniform" handling pairs of horses much like Hollywood pictures of classic charioteers.

But, in spite of all this publicity, this pioneering in what is now called American "drive" or public relations, there came snags which brought opposition and eventually caused the London Commissioners to invoke the agreement that lines should be removed on giving Train notice to quit. Rails were flat iron bars five inches wide and were spiked down to long timber beams kept in gauge by timber cross-ties, iron corner-plates being used to join these to the longitudinal beams. The tram wheels were two feet nine inches diameter, keyed fast in the revolving axles like rail wheels, and having all the friction and troubles experienced with narrow wheels on curves. Springs were simply chunks of vulcanised rubber resting on the axle-boxes.

Apart from such mechanical drawbacks which were common to the six tramways Train built in Britain, the three London lines were up against what the Press called "hostility from vested interests which every novel appliance is sure to encounter from those who are in possession".

Caused a Hold-up

The crowds came out, some to cheer and others to jeer. There were some who approved penny fares though hoping one day to ride "from Bayswater to Bow for one penny". And there came more material opposition, as when a furniture van was driven on to the rails to bring a complete hold-up — until the police appeared apparently from nowhere and booked the driver for obstruction, much as they would do in 1963. The driver was fined ten shillings in days when a pound was really a pound; yet Train was only fined a shilling "for breaking up and damaging the turnpike road".

In the end, the Metropolitan Commissioners gave him notice to withdraw his tram service, the Bayswater Line having terminated in September 1861, the Victoria Line in March 1862, and the Kennington Gate track in June 1862.

Train returned to Boston soon afterwards, having lost some of the fortune he had acquired as a shipping magnate in Melbourne. His biographers describe him as having "paved the way", an ill-chosen term since, with his rails constituting the main obstacle, he had done the very opposite, in fact, and had torn up pavements!

NEW CAR RACING GAME

As one would expect from the makers of "Monopoly", the new car-racing game "Formula I" is a game the whole family can enjoy—a game where skill and concentration are required if a player is to lap the circuit and negotiate the bends in safety. "Formula I" was checked by Grand Prix driver Innes Ireland for authenticity and is acknowledged to embody the basic principles of motor racing. Briefly, these are the relationship of tyre wear to acceleration, braking and cornering. Thus, by superior driving skill and technique, a youngster unable (or not allowed by law) to drive his father's car, may find he can beat his father, and other grown-ups, across the finishing line in this intriguing game.

The idea of "Formula I" is naturally to cross the finishing line first. If you drive too fast you incur penalties in brake and tyre wear, which at some time or other will mean a pit stop. On the other hand if you drive with great caution and incur no penalties at all your chances of winning are practically nil. A successful player, therefore, tries to drive at the maximum possible speed, incurring penalties so that, on completing a lap and pulling into the pits, he has maximum permissible brake and tyre wear.

Besides a miniature car, each player has a dashboard which contains four dials. The top one is set from 0–160 miles an hour, the lower left dial shows tyre wear from 0–8, the lower right dial shows brake wear from 0–5. Between these two dials is a lap indicator marked from 0–10 and this is set at the start of a game to show the number of laps constituting a given race.

The racetrack itself is marked in squares, each representing travel at the rate of 20 miles an hour, so that a player travelling at 80 miles an hour would move forward four spaces. As in actual racing, cars cannot accelerate from zero to maximum speed in an instant nor can they decelerate beyond a certain number of miles an hour. This latter fact frequently causes cars to take a bend at a greater speed than the "safety factor", which is marked in red on the curve. Depending on the excess speed at which a corner is taken, a player may either spin off—which does not mean he is out of the game—or after throwing the dice, be penalised a certain amount of tyre and/or brake wear which he sets on the appropriate dials.

Retailing at 21/–, including purchase tax, "Formula I" is a game for from two to six players. Naturally most thrills and spills occur when there are several cars on the circuit.

SPACE NOTES

Solar Wind Ship

THAT light can exert pressure has been known for some decades, and on various occasions this mechanism has been proposed as a means of propulsion for space-ships.

The best-known manifestation of light-pressure is the movement of the tail of a comet. This is composed of very tenuous material—of far lower density than the Earth's upper atmosphere—the particles of which are small enough to be affected by the pressure of light. When at a great distance from a sun a comet has no well-defined tail. As it approaches a sun the light pushes small particles away and these become visible as a "tail".

By

J. HUMPHRIES, B.Sc.(Eng.) A.M.I.Mech.E., A.F.R.Ae.S.

As the comet passes, the tail moves, so that it always points away from the source of light until finally, when the comet is receding, its tail is in front.

The highest amount of solar thrust is produced by a reflecting surface but even so it is not very great, about one milligram weight per square metre or, in more easily-appreciated terms, the equivalent of the weight of four cigarettes per acre!

The light from the Sun can be looked on as a "solar wind" blowing continually outwards away from the Sun. To catch as much of this "solar wind" as possible it would be necessary to use extremely large sails.

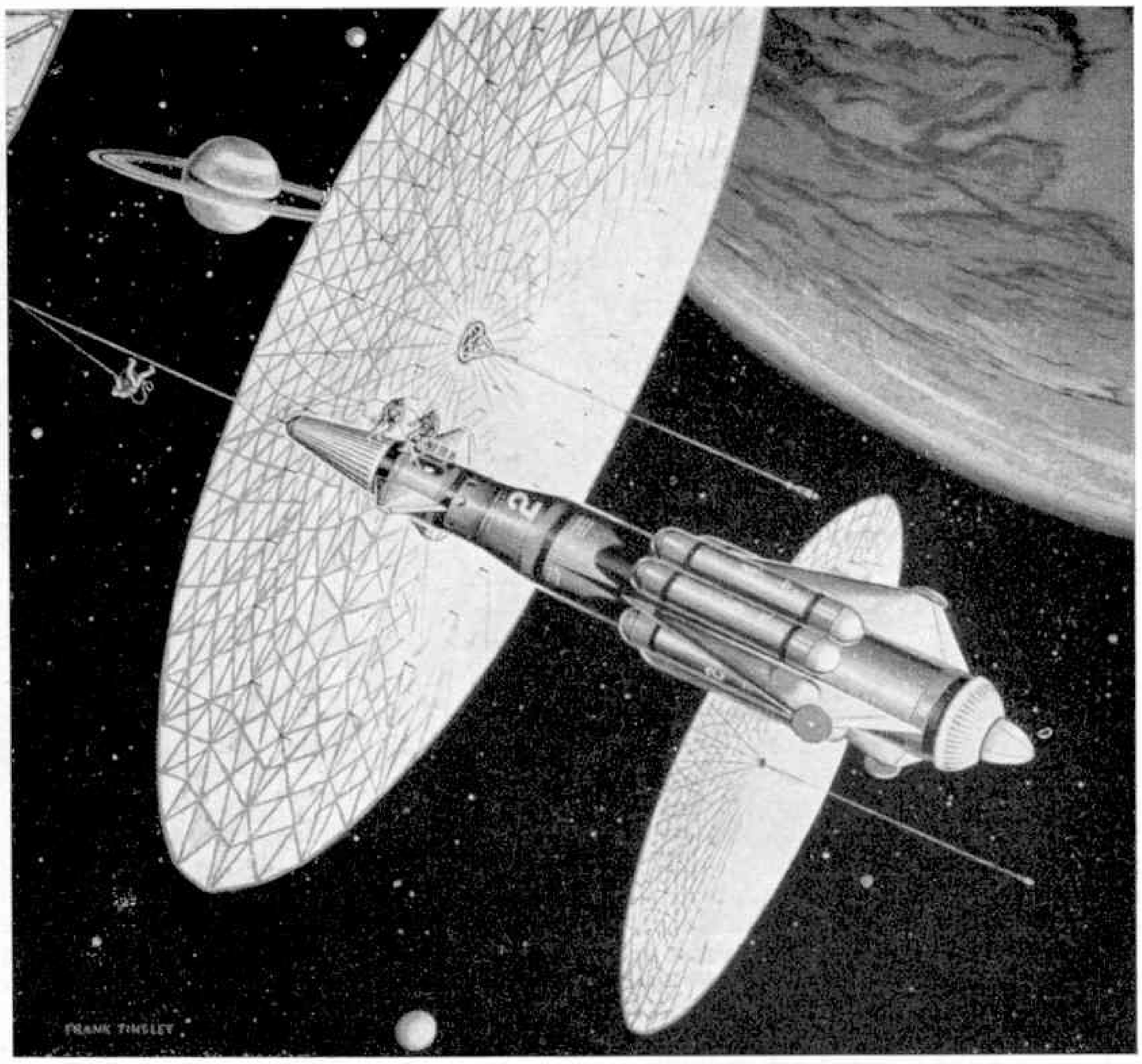


Fig. 1. A fleet of solar wind ships approaching Saturn. Note the huge size of the sail compared with the hull. Illustration by courtesy of American Bosch Arma and Frank Tinsley.

Our first picture this month is an artist's impression of a large circular mirror for space travel built up from aluminised plastic film, cross-braced by plastic masts and fine, glass filament rigging. The main part of the space-ship, the hull, is nuclear-powered for landing on planets and such a space-ship can be seen in the foreground. It is towed behind the mirror for the greater part of the journey and can revolve to produce artificial gravity for the crew. With such a small thrust the acceleration produced would be minute, and such a system could only be used on extended journeys to the outer planets when saving in fuel would be enormous.

ENVIRONMENTAL CHAMBER FOR SPACE-SHIPS

Environmental testing—that is the testing of components under the exact conditions under which they must perform in service—has for years been an important part of the aircraft industry. For space vehicles such testing is vital—they must operate in the vacuum of space, sometimes at very low and sometimes at very high temperatures. Unlike aircraft they do not, in general, return to Earth, so that reasons for failure of equipment cannot be analysed after landing. Thus there is need for most thorough environmental testing before launching.

One of the largest environmental chambers in use is owned by North American Aviation and an inside view of it is shown in our second illustration this month. It is 90 feet long, has a diameter of 22 feet and weighs 500 tons. The rear 20 feet retracts on rails so that really large objects can be put in for test. When preparations for a test are complete, huge vacuum pumps can evacuate the air until the pressure inside is equivalent to that at an altitude of 200 miles. Radiant heating can hold the temperature at 550 degrees C and a refrigerating plant can pull it down to minus 70 degrees C. For short periods, temperatures of 1100 degrees C and minus 120 degrees C can be attained and, in order to simulate true space conditions of sun-heating on one side and the cold of outer space on the other, the vehicle under test can be simultaneously heated on one side and refrigerated on the other.

MEASURING LIQUIDS IN SPACE

Determining the amount of liquid in a stationary tank on Earth is a simple matter—one can simply measure the amount with a dip-stick. If it is necessary to be able to read the amount from a distance, then a float which operates a potentiometer to give an electrical reading can be used. This system can be applied to moving vehicles and is the one normally used to measure the amount of petrol in a car's fuel tank. However, if you watch the tank contents gauge in a car, one big drawback of this system becomes apparent—although the actual contents remain the same, the indicator gives widely varying

readings, especially when the vehicle is going round corners.

For land vehicles, such behaviour is not very important, but for air and space vehicles it is. In aircraft, the usual way of solving the problem is to measure the fuel level at two or more places in the tank and arrange for the fuel contents gauge to indicate the average readings. Thus, although the exact true reading is still not given, there is far less fluctuation of the indicator as the fuel swishes about from one side of the tank to the other. A condenser type of contents sensor is used instead of a float, since it is more versatile and gives an accurate reading of contents over a wide range of aircraft altitudes. It consists basically of two concentric tubes which stretch from top to bottom of the tank. These two tubes act as an electrical condenser whose capacitance varies with the depth of fluid. Obviously, such a system will act just as well even when upside-down.

But measuring fluids in space introduces an entirely new problem. With no gravity, fluids tend to form themselves into spherical shapes, and if vibration from auxiliary equipment is present then the tank may be filled with hundreds of globes of liquid. Any normal measuring system would be quite unable to deal with such a situation, but Liquidometer, an American firm specialising in the measurement of fluids, has devised an ingenious instrument for use in space.

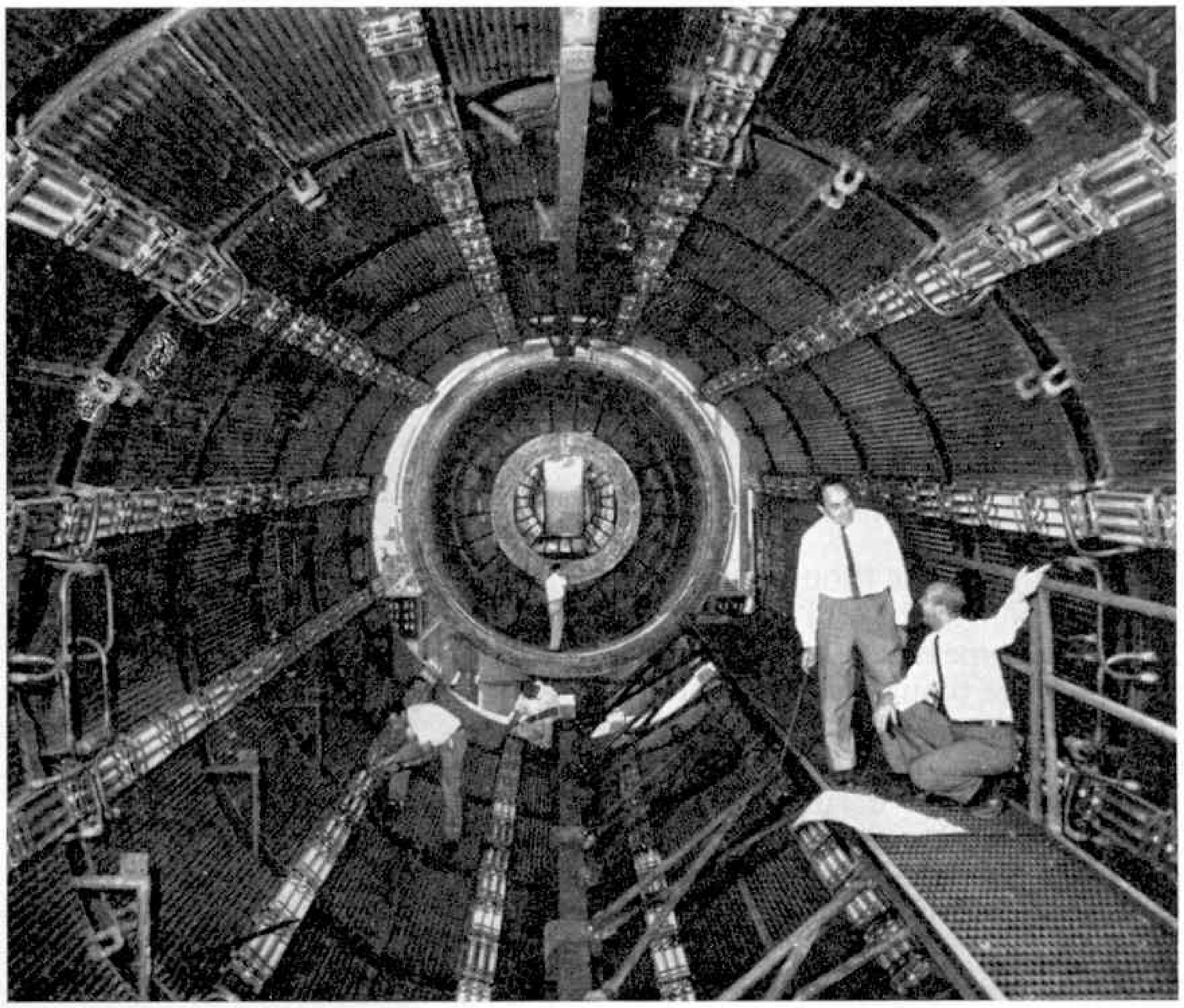


Fig. 2. View from the front end of a 500-ton environmental test chamber. Lines of heaters can be seen along the sides. North American Aviation photograph.

THE VERSATILITY OF GLASS

It consists of a large number of small condensers completely covering the whole volume of the tank. Thus, each condenser (they consist of wires, not tubes) covers a small section of the tank and the added values of all the condensers is indicated on the gauge, revealing just how much fluid is in the tank. Our third picture shows a tank with this new measuring system fitted in it—the mesh of condenser wires can be clearly seen. The gauge on the right is measuring not only the liquid at the bottom of the tank but also the liquid that composes the froth.

What do you think would be used for space viewports—some super new plastic with very high strength at high temperatures? No—glass! Although most people still think of glass as a very brittle material with a low softening point it is, in fact, very versatile. It can be made so tough that it is difficult to break with a hammer and certain kinds can, for short periods, be allowed to reach 1600 degrees C., which is ideal for re-entry conditions. Various chemicals, such as lead, can be added which have the effect of reducing harmful radiation without adversely affecting the optical properties.

The Mercury capsule uses a composite glass window consisting of four panels with air spaces between. It is also planned to use glass windows in Dyna-Soar and, indeed, it seems unlikely that glass will be superseded for windows in space for some time to come.

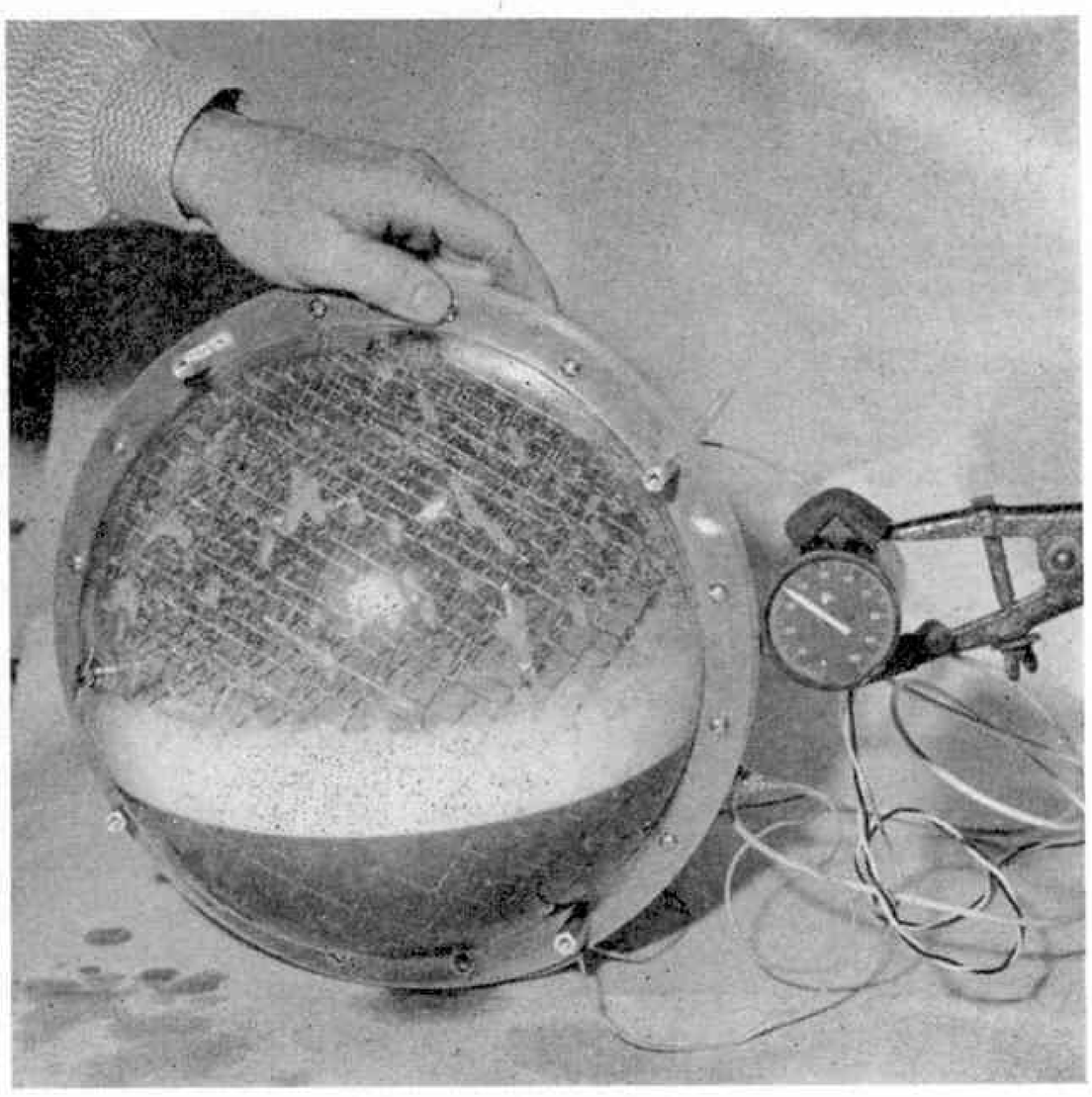


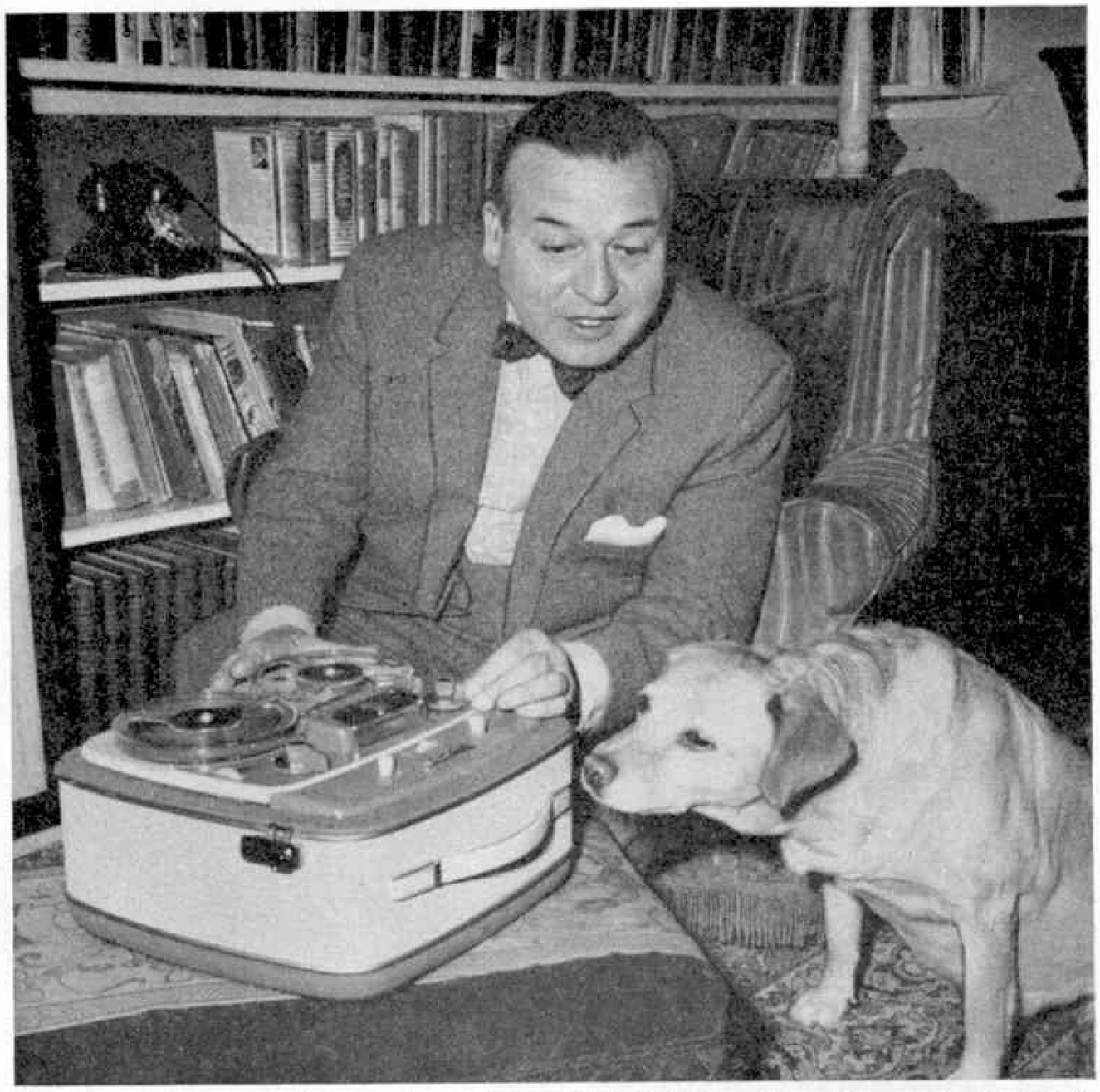
Fig. 3. A new type of contents gauge for measurement in space. The mesh of condensers will read the true contents regardless of the position of the liquid. Picture by courtesy of Liquidometer.

VINTAGE COMMERCIAL

We have received a copy of the above-named publication and find it of absorbing interest. There is a growing interest in vintage vehicles, both road and rail, and this magazine caters for the enthusiast with informative articles and notes. and numerous illustrations. Vintage Commercial is printed on art paper and is a London Artists presentation. It is published on the 23rd of each month by North London Artists, 18A High Road, East Finchley, London N.2. Price per copy is 2/6d.

FIRST ARTICLE IN A NEW SERIES

Tape Recording For Beginners



Voted many times musical personality of the year, Eric Robinson relaxes at home with his TK 25 tape recorder listening to some of his favourite music. His dog seems fascinated, too

HAVE you ever thought of taking up tape recording? It need not be very expensive. If your income does not admit of the expenditure of more than ten shillings a week on your hobby, you can go in for it; and if you are content to use one tape, obliterating and recording as you desire, then the cost is no more than the initial outlay, incidental repairs, electricity consumed (probably the worry of your parents!) or, if you have a portable instrument, the occasional batteries required.

The best type of mains-operated recorder for the newcomer to tape is gadget-free, and makes use of only two tracks of the tape. The $3\frac{3}{4}$ inches per second speed is perfectly accurate for both music and speech, as well as the variety of sounds that the ingenious-minded will want to attempt. The frequency response of the beginner's machine, too, need only be in the range of 50 to 10,000 cycles for it to be perfectly satisfactory for the above purposes, while an output of 2 watts would likewise reproduce recordings very well.

By

Gordon E. Gompers

The best type of spool for such a machine, providing length of playing time plus economy, is the five-inch spool carrying 600 feet of standard play tape. This costs at present about eighteen shillings and will record a half-hour's radio programme on either side of the two tracks.

The microphone, usually of the sensitive crystal variety, will generally be supplied with the machine and included in the purchase price. Also included with the price as a rule are cable and plug for recording direct from radio or record player, without the use of the microphone. The total cost of all the above equipment is in the region of £20–£30.

Tape recorders may be purchased second-hand at very reasonable prices, but, of course, if you buy one in this way it behoves you to be cautious. To anyone contemplating buying a second-hand machine, the following tips may be useful: In addition to hearing the recorder play music, insist on speaking into the microphone provided and hear your own voice reproduced. Listen for the background hiss and mains hum. Modern machines are virtually free from hum. Check whether the tape guides are badly worn; if they are, the tape "heads" are probably worn also. Listen to a tape recorded on a machine known to be in satisfactory order. This will enable you to judge quality and volume, and to discover if the "heads" are properly aligned. Watch how quickly the tape spools stop when the machine is switched off. If brakes are alright, they should stop smartly.

Once a machine has been bought and the technique of recording has been mastered, you might do well to consider buying a tape splicing aid and a reel of splicing tape, to the use of which I will refer later. These should not come to more than twenty-five shillings.

The machine should be kept free of those deposits of ferrous oxides which are liable to build up whenever the matt surface of the recording tape makes constant contact. The frequent application of methylated spirit, either with a soft brush or cotton wool on the tip of a matchstick, will always ensure perfect clarity of of recording and production. The recording heads are those parts most prone to coating with oxide, so unless particular attention is paid to these, volume will be decreased on play-back, and previous recordings will not be properly erased.

The machine, if within the price range suggested, should possess some kind of "magic eye" recording level indicator—a small tube that shows, by the fluctuation of its two illuminated edges, the volume of sound the recorder is pushing up. The capacity of the machine should never be over-loaded by the beginner expecting it to record too great or too minute a volume of sound.

A pair of ear 'phones will be found invaluable for monitoring the input from radio or record player through the connecting lead, although one can quite well record by carefully observing the "magic eye" from time to time.

When the machine is first switched on for making a recording, both tone and volume switches should be turned up fully. After a warming-up period of about ten seconds the recordings may be commenced. It is really best to have only one voice at a time speaking into the microphone. Recordings should be marked as soon as they are completed with self-adhesive labels fastened to the spool itself. Remember that one piece of magnetic tape looks very much like another, whether blank or recorded.

Small portable battery-operated sets are really quite delightful, and are useful as a supplement to a mains-operated machine. The battery set enables the recordist to go anywhere to capture outside effects, without worrying about a mains supply. One can later dub these effects from a battery portable on to the mains-operated machine, but this is really an advanced stage of recording and would most likely only be required for a taped play.

(*Continued on page 46*)

THE PRAM AND PUSHCHAIR RAILWAY

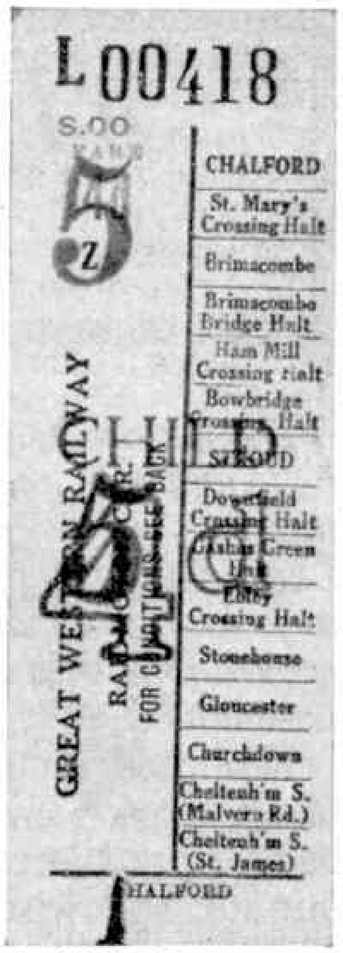
IN these days many parts of our railway system are suffering the loss of their passenger services on the grounds that they do not pay. When this is so, it often arises from a failure to economise in operating methods and to provide the kind of service best fitted to tap all potential traffic.

By
O. Humberstone Prosser

It comes, therefore, as a refreshing change to sample a rural line which retains its patronage by giving an adequate and efficient form of public service, and shows how successfully cheapened operating methods, like the use of unstaffed halts and the issuing of tickets by the guard, can be applied.

After thousands of miles of railway travel and visits to dozens of branch lines, I can say that few have pleased me more than did a recent Friday afternoon run between Gloucester and Chalford. Although part of the cross-country route between Gloucester and Swindon, the portion to Chalford may be regarded as a self-contained branch, and has all the features which mark it out as such. Anyone who has a couple of hours to spare in Gloucester and fancies a pleasant country trip would do well to make this journey and savour the pleasure of seeing, in action, that perhaps rather rare thing, a well run and still popular rural railway.

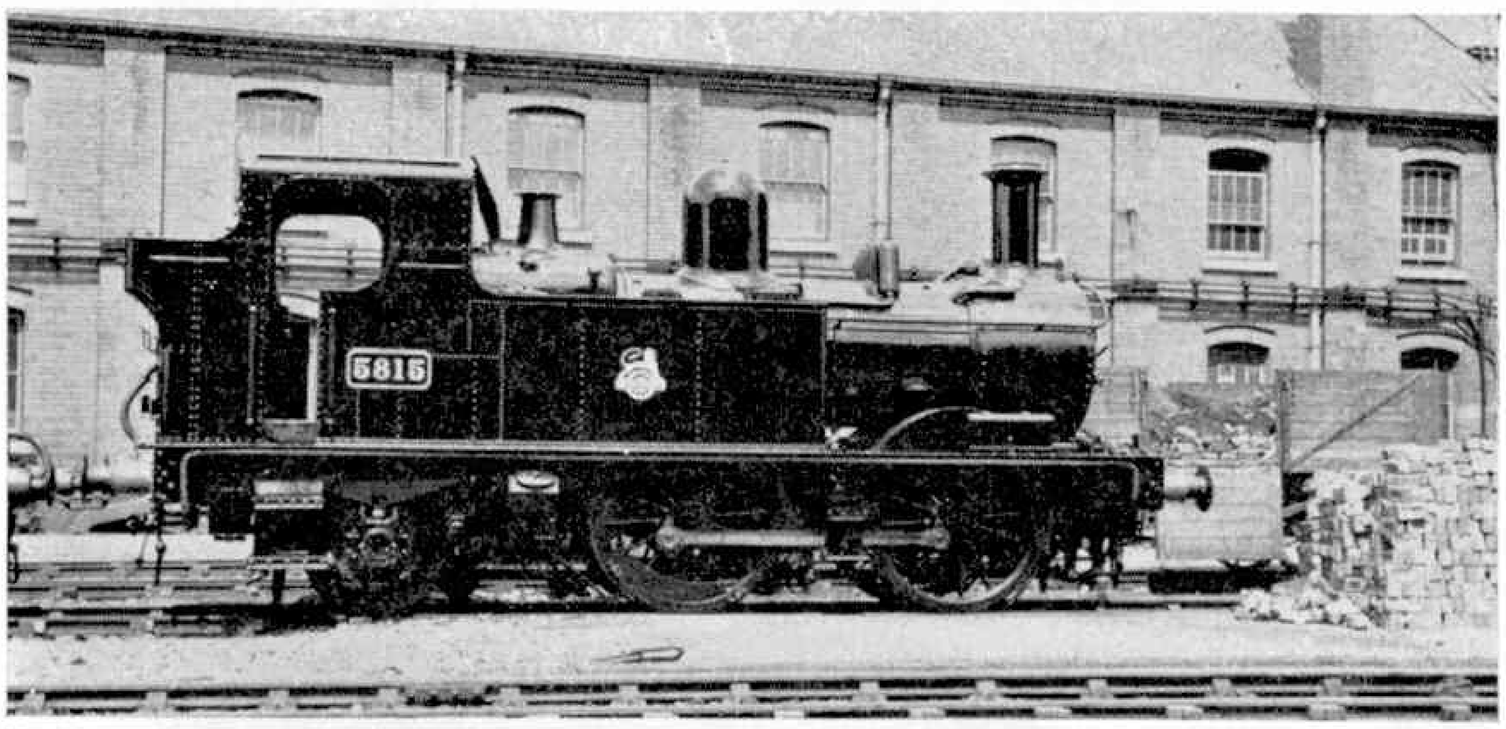
Just as our radios treat us regularly to "The Legend of the Glass Mountain", so the propaganda machines of those who foretell doom for all but the trunk routes spread the legend of the unremunerative branch line. It is those who may have been tempted to succumb to this line of thought who would benefit most by the experience. Come with me, then, and let us see how things are done in this case.



A child's ticket—popular item on the Gloucester–Chalford line.

A look at the timetable shows ten trains each way daily — with variations for Saturdays and certain week days — serving all the halts between Stonehouse and Chalford as well as the through trains, to and from Swindon, which miss the halts and stop only at stations. So the first requirement of the would-be passenger is met in that there is a good enough service to allow of one's travelling. Another pleasant surprise awaits us on reaching the booking office at Gloucester Central, where the cheap day return fare for the 32-mile round trip to Chalford proves to be only 4/–, as reasonable as can be expected in these days and much less, of course, than that of many country buses.

A broadside view of No. 5815 of the 0–4–2 tank class built specially for branch line working. Photograph by I. J. Wilkins. Bottom picture: A typical auto-train consisting of 0–4–2 tank and driving trailer car, as used on the Pram and Pushchair Railway. This photograph by the author was taken at Abbotsbury.



The branch train that stands ready to receive us in the bay platform is of the very kind that promises an interesting journey. Here is a long, centre-gangway trailer car of an old and well-established Great Western design but modernised by the provision of contemporary fittings and comfortable, cushioned rests in place of the rather more austere equipment earlier found on these cars. Attached is a tiny four-coupled tank engine, No. 1426, of the design which, although built as recently as 1932 appear, with their long funnels and huge domes, to be a throw-back to some earlier generation of steam engines—as indeed they are. The choice of one of these lively pygmies to play its part in *The Titfield Thunderbolt* has appropriately enshrined them for ever in the public mind as the branch line engine par excellence.

The tiny train sets off to the minute and is soon showing its paces in the uninterrupted nine-mile sprint, most of it parallel with the Birmingham–Bristol main line, down to Stonehouse. Henceforth the whole character of the journey changes, for in the seven miles on to Chalford we are to call at no fewer than seven halts, as well as Stroud and Brimscombe Stations. It is on this section towards Stroud that we see how the policy of the old Great Western, in building halts close to all centres of population and putting on a

(*Continued on page 47*)

AIR NEWS

By John W. R. Taylor

LAST OF THE "DAM-BUSTERS" MAKES HISTORY

IT is nearly 20 years since the Avro Lancaster bomber achieved its greatest triumph in the wartime "dam-busting" raid by No. 617 Squadron, but this fine old aircraft is still making news. On October 2 last year, the last Lancaster still flying regularly in the United Kingdom took off from the airfield of the College of Aeronautics, at Cranfield, at the start of a research programme that may have results as exciting as any since the advent of the jet-engine.

Mounted on top of its fuselage, like a shark's fin, is a small, swept-back wing pierced with dozens of minute, spanwise slits. Ducts lead from these to two pumps which suck the layer of stagnant air next to the wing surface (known as boundary-layer air) through the slits and exhaust it rearwards. This reduces drag by minimising the wake of stagnant air which would normally trail behind the wing.

As wake-drag amounts to more than half of the total drag of a modern jet-plane, the advantages of reducing it are obvious. Less effort is required to propel the aircraft through the air, so less fuel is needed to travel a given distance. The saving can be used either to increase the aircraft's range or to enable it to carry a greater payload. Applied to an airliner, the new technique could, therefore, make possible very much lower fares than those charged today.

BEES, BLOOMS AND BOEINGS

To mark the fourth anniversary of the introduction into service of the Boeing 707 jet-liner, on October 26 last, Boeing did some sums and ended up with the fact that the 317 aircraft of this type delivered up to that point had carried between them more than 30,000,000 passengers. This is equivalent to the combined populations of Australia, New Zealand and Canada. In carrying this immense number of people the 707's travelled a total of more than 740 million miles and logged 1,697,280 hours of flying on airline services.

Of course, the big jets carry many other things besides human beings. Pan American 707's buzzed across the Atlantic recently carrying 41 colonies of bees from New York to Brussels, while Qantas also set a record by flying 304 cartons of cymbidium orchids from Australia to the United States. Each carton contained 120 blooms, which fetch up to a dollar each on the U.S. market.

Such valuable cargoes require V.I.P. treatment. Each orchid had its stem in an individual test-tube of water, and was cushioned by layers of shredded paper and laced to the bottom of the carton to prevent bruising.

AIRBORNE CHAIRMAN

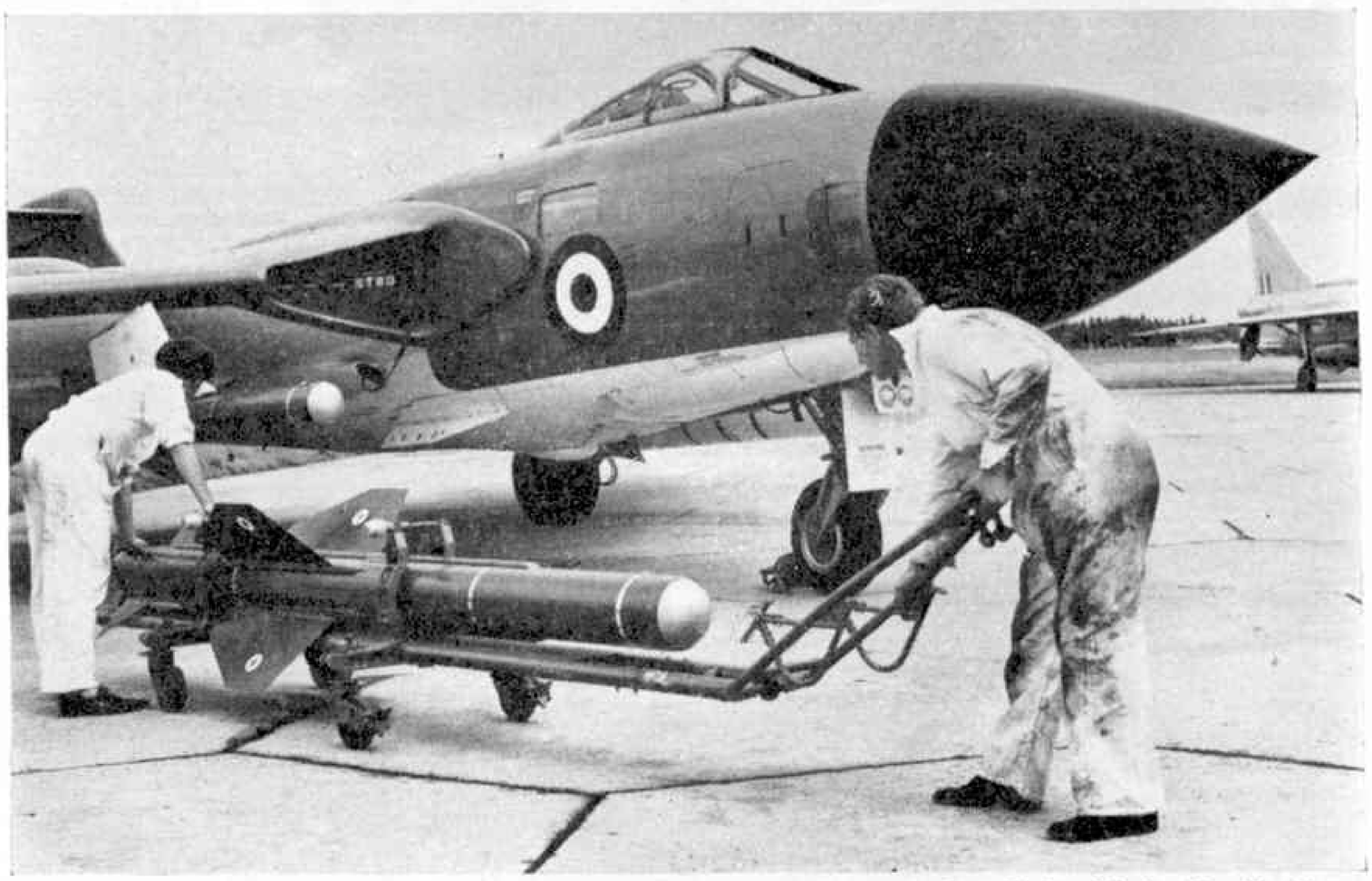
Another recent aeronautical birthday was the thirtieth anniversary of the first air mail flight from Karachi to Bombay, on October 15, 1932. The pilot who made the original flight, Mr. J. R. D. Tata, is today chairman of Air India, but he is no chairbound executive.

To prove this, and to commemorate the event properly, he borrowed a little 130 h.p. D.H. Leopard Moth, very similar to the Puss Moth he used for the 1932 flight, and flew it over the same route, carrying a sack of special mail.

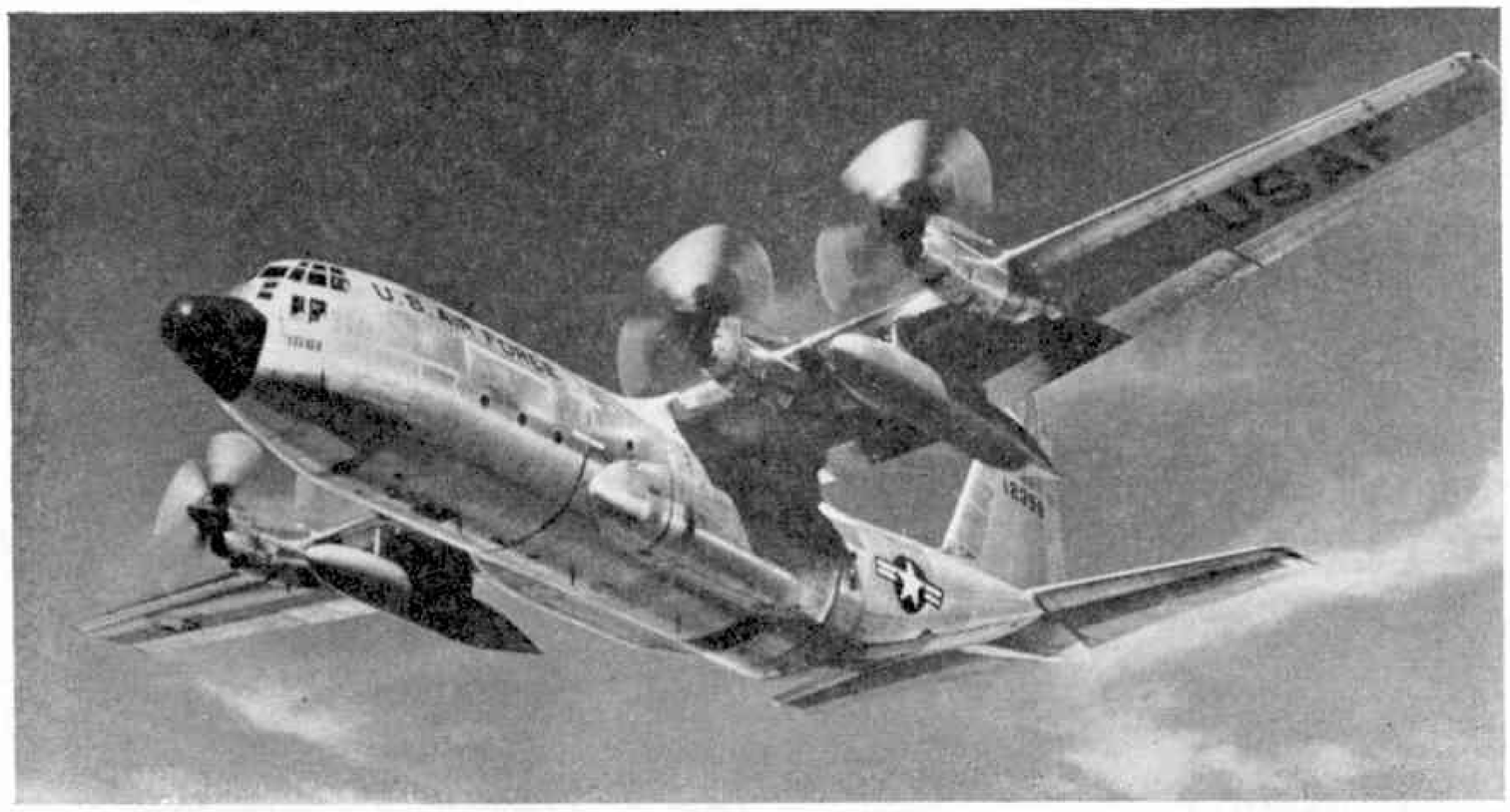
I wonder how many other airlines have a chairman with the ability and enthusiasm to make such a flight, which required seven hours at the controls?

RED TOP IS TOPS

As most regular readers of the *M.M.* will know, the standard armament on the latest interceptor fighters of the R.A.F.



Top: Britain's last flying Lancaster bomber seen at close range. It was its first flight with the Handley Page breathing wing—the "shark's fin" in the centre of the fuselage. Below: The infra-red homing missile known as Red Top which has been developed by de Havilland.



The power of the Lockheed Hercules transport is revealed in this photograph of the machine in flight. This is the C–130E version with a 1,360-gallon fuel tank carried under each wing.

and Fleet Air Arm is de Havilland's Firestreak infra-red homing missile. This is designed to detect and fly towards the hot exhaust from the engines of enemy aircraft, and it is highly efficient. The only snag is that it has to be fired on a pursuit course, from behind the target, which might waste time in action.

To overcome this drawback, de Havilland have now developed an even better infra-red homing missile known as Red Top. As can be seen in the lower illustration on page 10, it is very like Firestreak in general appearance, with a cylindrical body, four fixed wings and pivoted tail control surfaces. But it has a domed nose instead of the pencil-point nose of Firestreak, and is fitted with such an advanced guidance system that it can be fired against the target from any direction, even head-on, and still pick up the heat from its engines.

Red Top will arm the new Mk. 3 version of the Lightning and the Mk. 2 version of the Navy's Sea Vixen.

A REMARKABLE ESCAPE

People who make parachute jumps for fun always wear two 'chutes in case the first one fails to open. It is hardly ever necessary to use the reserve parachute and cases of both 'chutes failing to open are, fortunately, almost non-existent. Almost, but not quite—for it happened last summer when parachutist Pat Smith made a demonstration jump at an air display in the Transvaal, South Africa. Incredible as it may seem, he is still alive and still jumping out of aeroplanes for fun!

When his main 'chute remained firmly in its case and the reserve wrapped itself round his body, he resigned himself to death. But he plunged into some banana trees which helped to cushion his fall and, on recovering consciousness a few minutes later, was amazed to discover that he could get up and walk. To celebrate, he turned up as usual at the Transvaal Parachute Club next day to try again . . .

High Tea!

I received from the Air Ministry recently a short history of the Far East Communications Squadron, which began life at the R.A.F. Station of Changi, Singapore in 1947. At that time its sole equipment was the Avro York "Ascalon" which had been used for some of Sir Winston Churchill's most important wartime journeys. Today, it operates two Hastings, four Valettas and a Pembroke.

The history tells how, on one occasion, the navigator of one of the Valettas, which was carrying Iban tribesmen from Borneo, smelt smoke coming from the cabin. When he went aft, he found his passengers sitting happily around a bonfire which they had lit in the middle of the floor to cook a meal.

NEW HERCULES

The Lockheed Hercules transport has been one of the mainstays of the U.S.A.F.'s Tactical Air Command for six years. It can carry up to 92 troops and also heavy loads of freight and vehicles which can be driven up a rear loading ramp, straight into its 41-foot-long hold.

Now, a special long-range version of the Hercules is entering service with the U.S.A.F. Known as the C–130E, it carries a 1,360-gallon external fuel tank under each wing, as shown in the illustration on this page. They increase its fuel tankage to a total of 9,680 gallons, which enables the C–130E to fly the Atlantic non-stop with a 13½-ton payload, or cross the Pacific with only one stop en route. Like the earlier C–130B, the new Hercules is powered by four 4,050 h.p. Allison T56 turboprops. It spans 132 feet 7 inches, is 97 feet 9 inches long and has a maximum take-off weight of 155,000 lb. Top cruising speed is 365 m.p.h.

HELICOPTER'S RIVAL

One of the most interesting lightplanes flying in America today is the Skycraft Skyshark, illustrated at the foot of this page. It is not the only aeroplane fitted with a form of leading-edge slots and double-slotted wing flaps to make possible slow short take-offs and landings, but it does introduce a new control system which ensures perfect handling qualities and safety at speeds as low as 20 m.p.h., when airflow over normal tail controls is inadequate.

Designed by Mr. James L. Robertson, the control system consists of a short-span foreplane, elevators, twin fins and rudders mounted on the nose of the aircraft. They are linked with (*Continued on page 46*)

The aptly-named Skycraft Skyshark which is fitted with equipment for short take-off and landing and a new control system for safe flying at extremely low speeds. Clearly visible in the picture is one of the fins and rudders which are mounted on the nose of the aircraft for control purposes.

HARNESSING THE SUN TO MELT METALS

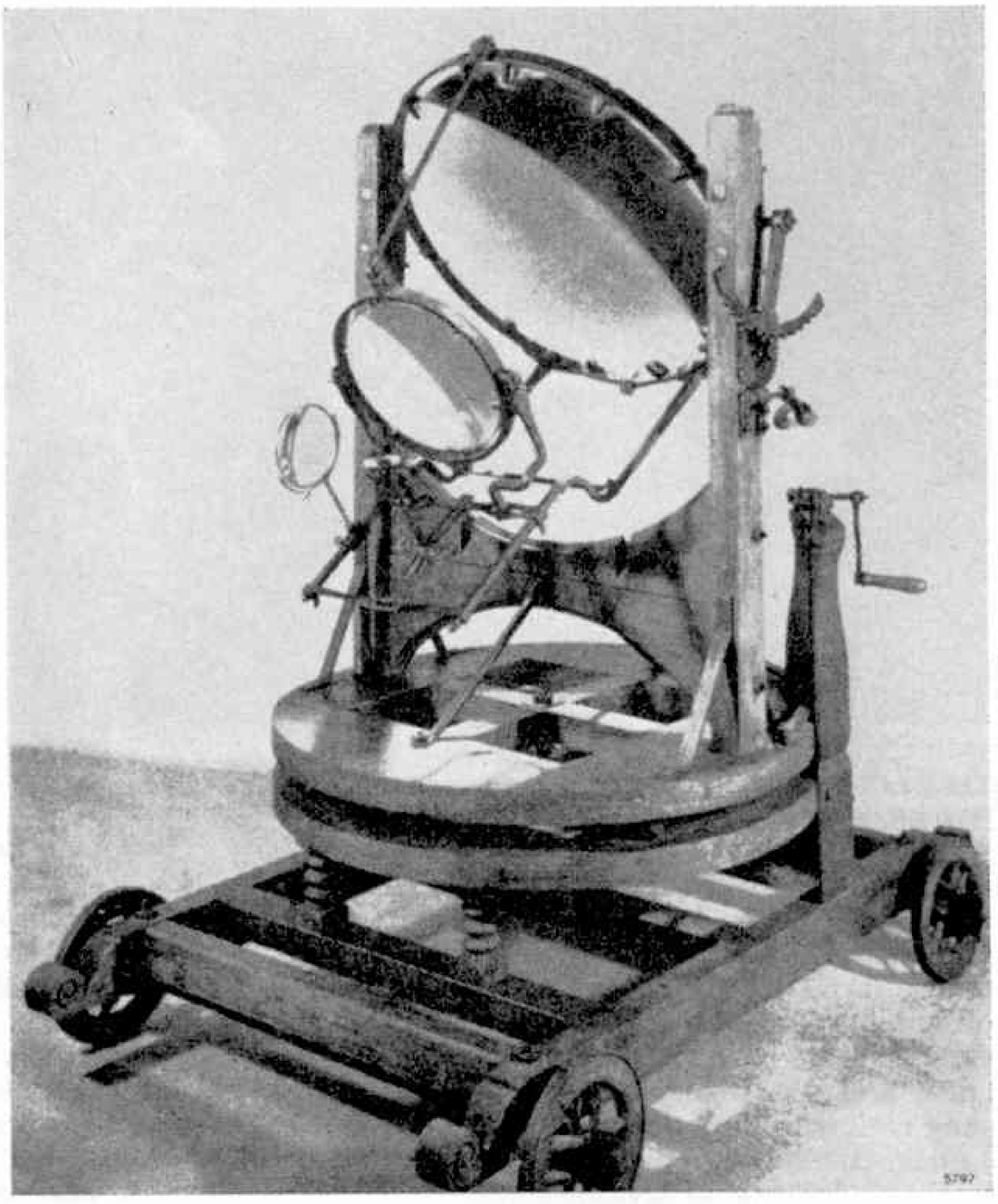


Fig. 2. A type of radiation furnace as used in the seventeenth century is this fine burning glass, in portable form, by E. W. von Tschirnhaus. Illustration by courtesy of Deutches Museum, Munich.

THERE are few boys who have not at some time or other used a magnifying glass and the rays of the sun to burn a hole in, or even set fire to, a piece of paper. The lens makes an image of the sun on the paper and the image in theory, but not in practice, may be made equal to the temperature of the surface of the sun, some 6,000 degrees Centigrade. In practice with superior equipment it is difficult to produce a temperature much above 2,800 degrees C.

The sun has been worshipped from the earliest times —a token of the respect early men had for its great power and life-giving forces.

Fig. 1. Recording for posterity the re-foundation of the Temple of the Sun-God, at Sippar, is this tablet now in the British Museum, by courtesy of whom this photograph appears.

In Fig. 1 you can see a famous stone tablet, now in the British Museum, which records the re-foundation of the Temple of the Sun-God at Sippar, in Babylonia, in the ninth century B.C. by

By FRANK W. COUSINS, A.M.I.E.E., A.C.I.P.A., F.R.A.S.

Nabu-apal-Iddina. How the sun produced heat was a great mystery and early peoples did not enquire closely into the nature of their god.

In more recent years, we have evidence to show that the sun is, in fact, a star generating its great heat by converting hydrogen gas into helium—a transmutation of one element into another with loss of mass and the liberation of heat. It may surprise you to learn that the sun loses some four million tons of its mass every second.

The technique of using a burning glass to focus the sun's rays for making fire is very old. In antiquity the method was used for lighting fires and kindling sacred altar flames.

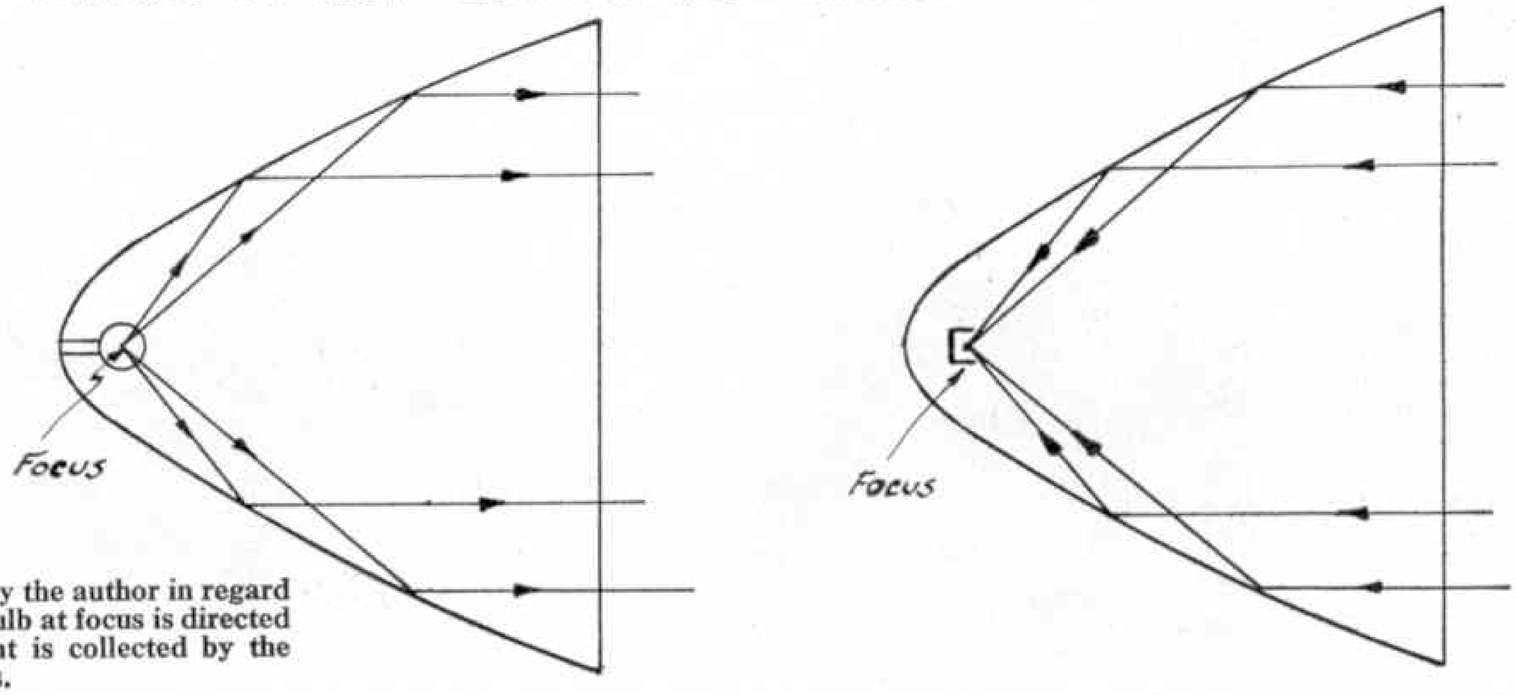


Fig. 3. These two drawings illustrate the points made by the author in regard to the use of a paraboloidal mirror. Left: Light from bulb at focus is directed by the paraboloid into a parallel beam. Right: Light is collected by the paraboloid and brought to a focus.

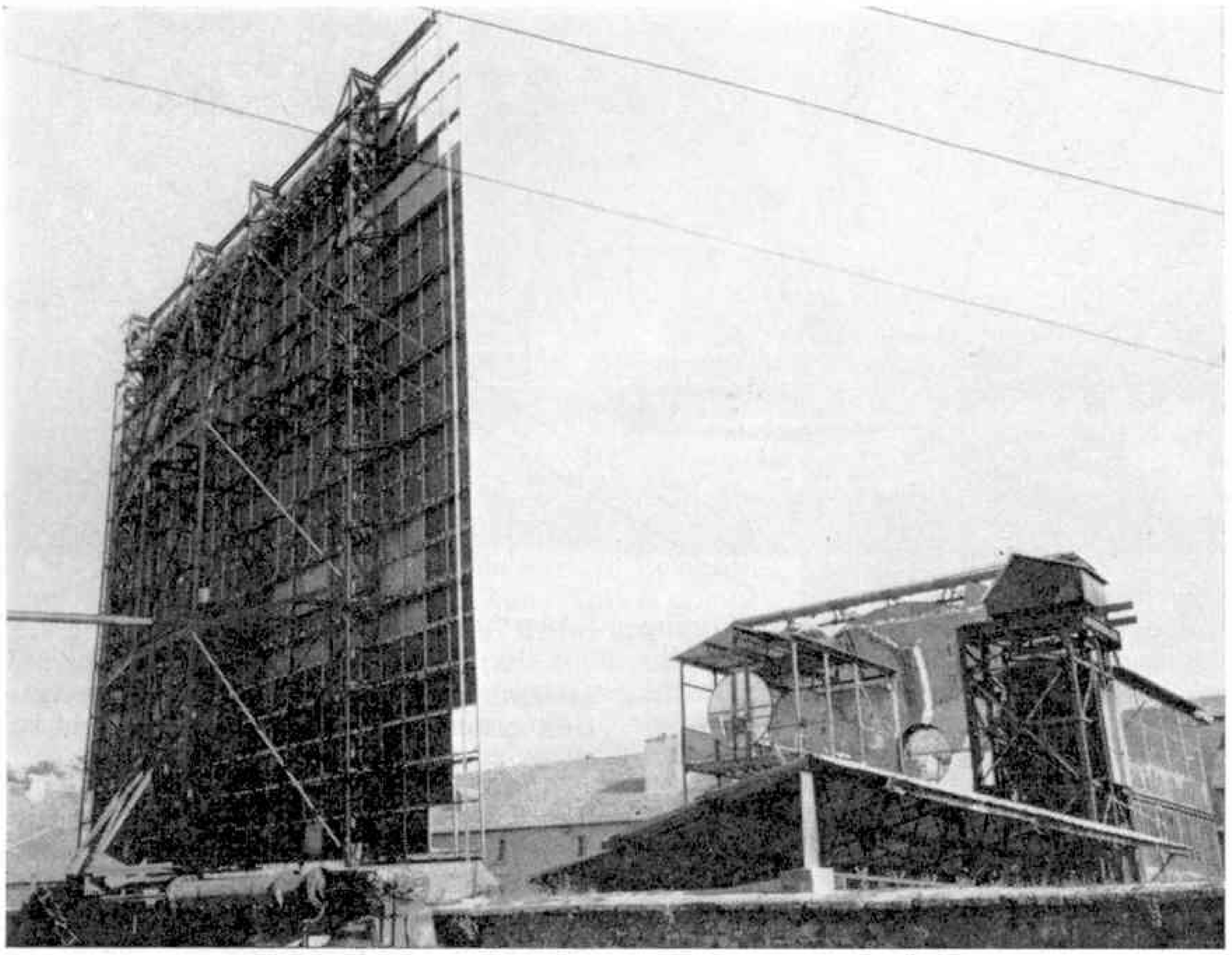


Fig. 4. This interesting photograph shows the installation at Mont Louis, in the South of France, where a solar furnace operates. It is described in diagram form in the picture below. Illustration by courtesy of Centre National de la Recherche Scientifique.

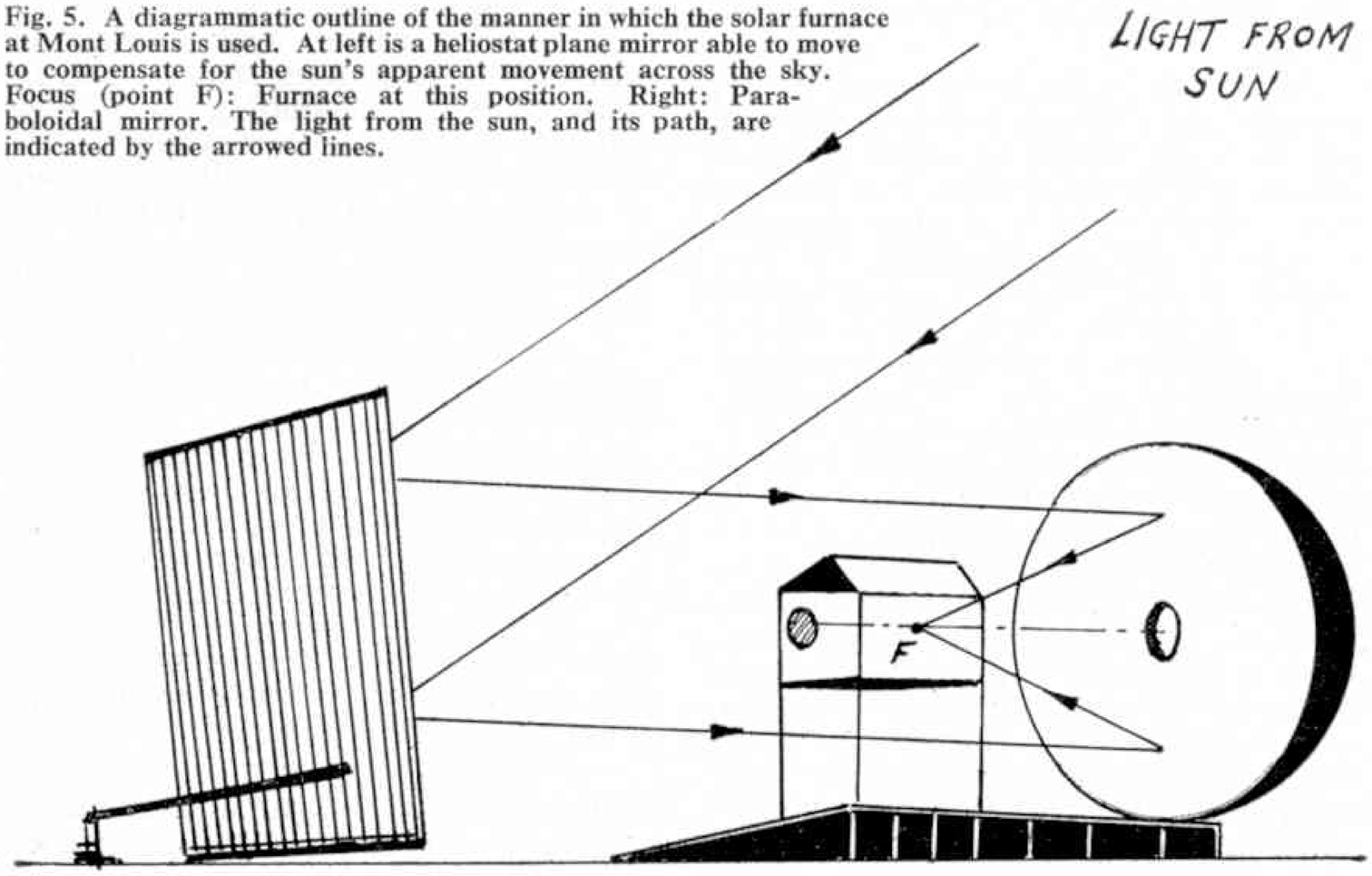
In the early seventeenth century, superior burning glasses had been designed to provide a radiation furnace suitable for the melting of metals. A fine burning glass (radiation furnace) by E. W. von Tschirnhaus, is shown in Fig. 2. One big advantage of such a furnace is the purity of the heating source, since the object is not contaminated by the elements of combustion associated with conventional heating by fire.

Another method of making an image other than by the use of a lens is by recourse to a specially shaped mirror — a paraboloidal mirror (Fig. 3). This shape is well known to you in the form of a car headlamp or one of the many types of bowl-shaped electric fires. In these appliances, the light and heat at the focus is sent out by the paraboloidal bowl reflector into a parallel beam. The converse to this is that in which a parallel beam is received on the bowl and allowed to be brought to a point at the focus.

It is this latter procedure which is used in the great solar furnace at Mont Louis, in the South of France. The light from the sun is received by a plane mirror measuring 1,500 square feet in area and directed to a paraboloidal mirror the area of which is 969 square feet. The great paraboloid focuses the sun's rays to a point within an oven or furnace-member placed on a stage in front of the mirror. The principle is readily seen from the photograph and sketch shown in Figs. 4 and 5.

The solar furnace at Mont Louis is used extensively for melting Zirconium which has a melting point of 1,850 degrees Centigrade. Temperatures in excess of 2,500 degrees C. have been generated by this great installation. A bigger furnace is now being built at the village of Odeillo and will be ready in 1964.

Fig. 5. A diagrammatic outline of the manner in which the solar furnace at Mont Louis is used. At left is a heliostat plane mirror able to move to compensate for the sun's apparent movement across the sky. Focus (point F): Furnace at this position. Right: Paraboloidal mirror. The light from the sun, and its path, are indicated by the arrowed lines.



For The Space Travel Enthusiast

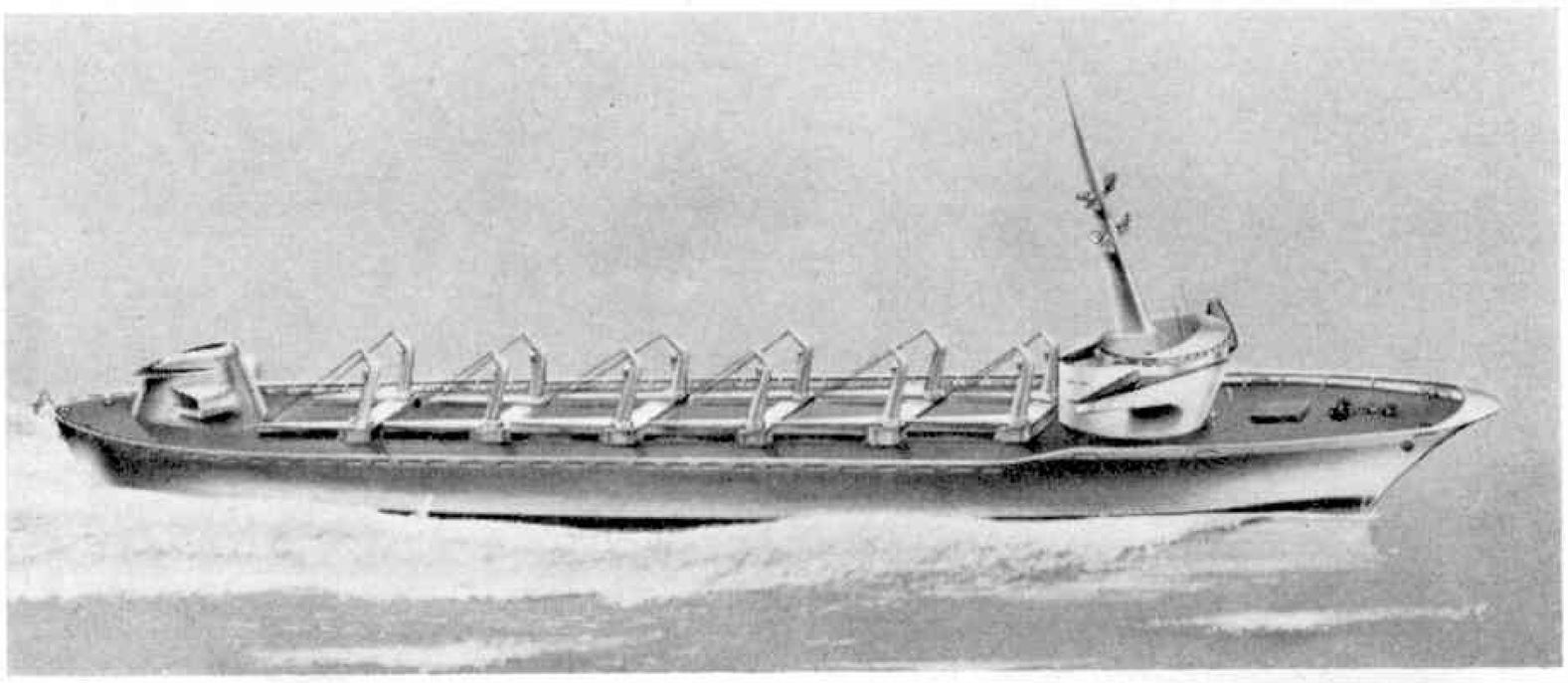
Space Travel, Heinz Gartmann (Batsford, 21/–). Of the 142 pages in this book about 100 are devoted to pictures and the rest to the text and index. This is primarily a picture book—and a good one. The 140 pictures (excellently reproduced on good quality paper) range from photographs of the small German rocket tests of the early 'thirties to artist's impressions of manned lunar landings. Each picture has a very full description with it and the reviewer has had several hours of pleasure just browsing.

The text also stands by itself and there is no reference in it to the pictures, thus relieving the reader of the annoyance of continually turning pages backwards and forwards. It is intended as a general review of satellites (there is a short paragraph on each main type), space flight for research and commerce and the effects on man of space conditions. There are, of course, many topics left out in such a short survey but it is an excellent appetite whetter.

Finally, a few words about the author. Heinz Gartmann was a trained engineer and worked on rocket motors in Germany during the war. Afterwards he turned to writing and produced many hundreds of articles and several books on space flight. He died two years ago while on his way to a space flight congress in Sweden. He had many friends in the space flight industry and his book is a first class example of his skill as a writer on space flight.

A GLANCE INTO THE FUTURE

AUTOMATION IN SHIPS



An artist's impression of a fully-automated ship.

By

IAN S. BALDERSTONE

THE vision of a merchant ship capable of sailing across the sea without a single person aboard could well become a reality within the next decade. The United States Maritime Administration announced recently that a study contract had been placed to plumb the possibilities of ship automation. Essentially there are two degrees of ship automation at present being considered:

1. A partially-automated ship—one that has been automated to the maximum practicable extent. In such a ship, a crew would be carried but only for emergency action and to effect necessary repairs that could not wait until port was reached.

2. A full-automated ship—one that could sail throughout an entire voyage without any crew on board.

There is no question but that today's technology, which can put a man into orbit and return him to earth, has the state of development for fully automating a ship. Indeed, the surprising thing is that in an age of automation, where new equipment and components are being developed at a breathtaking pace, one finds so few of the products of this new technology in use on ships at the present time.

* * * *

The main reason for American and British interest in ship automation is that it represents a means of competing with low-cost foreign operators whose crew expenses are about a quarter of those in the United States and United Kingdom.

Let us consider first the functioning of a partially-automated craft. Taking departure from the pilot station, the master will have worked out the courses and speeds for the designated route and will have estimated his time of arrival. The latitude and longitude of the ship would be continuously displayed in numbers and traced on a chart. The condition of the ship would be indicated as to tank levels, metacentric height, list, trim, fire detection, fire mains and CO_2 supply.

At all times the master or mate on watch would be able to observe the operation of the great circle and dead reckoning computers, present course, and the collision avoidance system in addition to the ship control apparatus. The master could, at any time, make his own computations. He would have the usual radio direction finder to use in rescue operations, and could alter the ship's course when these operations had been completed.

The full-automated ship would be capable of sailing between harbour pilot drop-off point to harbour pilot pick-up point without the need for human control. The ship would automatically navigate itself, avoid collisions, communicate with other ships and shore stations and perform all functions without human control.

* * * *

It is believed, however, that initially a fully-automated ship will have a master aboard. One officer will stand watch in the wheelhouse. No engineering watches will be stood. The command philosophy would, therefore, be similar to that for the partially-automated vessel. For this and many other obvious reasons the partially-automated ship is the most logical choice for the first major step in automation. The lessons learned in such a craft could then be applied to the more ambitious project.

Navigation, in the broad sense, is very complex and methods used vary, depending upon the waters in which a ship is sailing. The situation encountered in mid-ocean, where the task of dead reckoning is routine and is repeatable over long periods of time, is fairly simple. It is this type of operation which is most suitable for automation from the technical and economic standpoints. In the partially-automated system the navigator has two major functions: (a) He must take a position fix and upgrade the dead reckoner; (b) He must be logically able to decide whether something is malfunctioning by comparing the fix position to the indicated position. For the system to be fully automatic it must have the capacity to make position fixes, perform self-checking steps, and implement the proper corrective measures. The firm awarded the study contract by the Maritime Administration has long been associated with guidance systems and it is their belief that a navigation system for full automation could be easily evolved.

A collision avoidance system is even more necessary for an automated ship than for a conventionally manned vessel. Various methods have been studied, but the final choice goes to the use of a digital computer. Now, for a digital computer to solve basic problems data must be presented in suitable form—in its own language, if you like. Hence the "Rules of the Road" have been reduced for the benefit of the computer to mathematical terms. The computer will calculate whether a meeting or crossing situation exists and, if so, what avoiding action will be necessary.

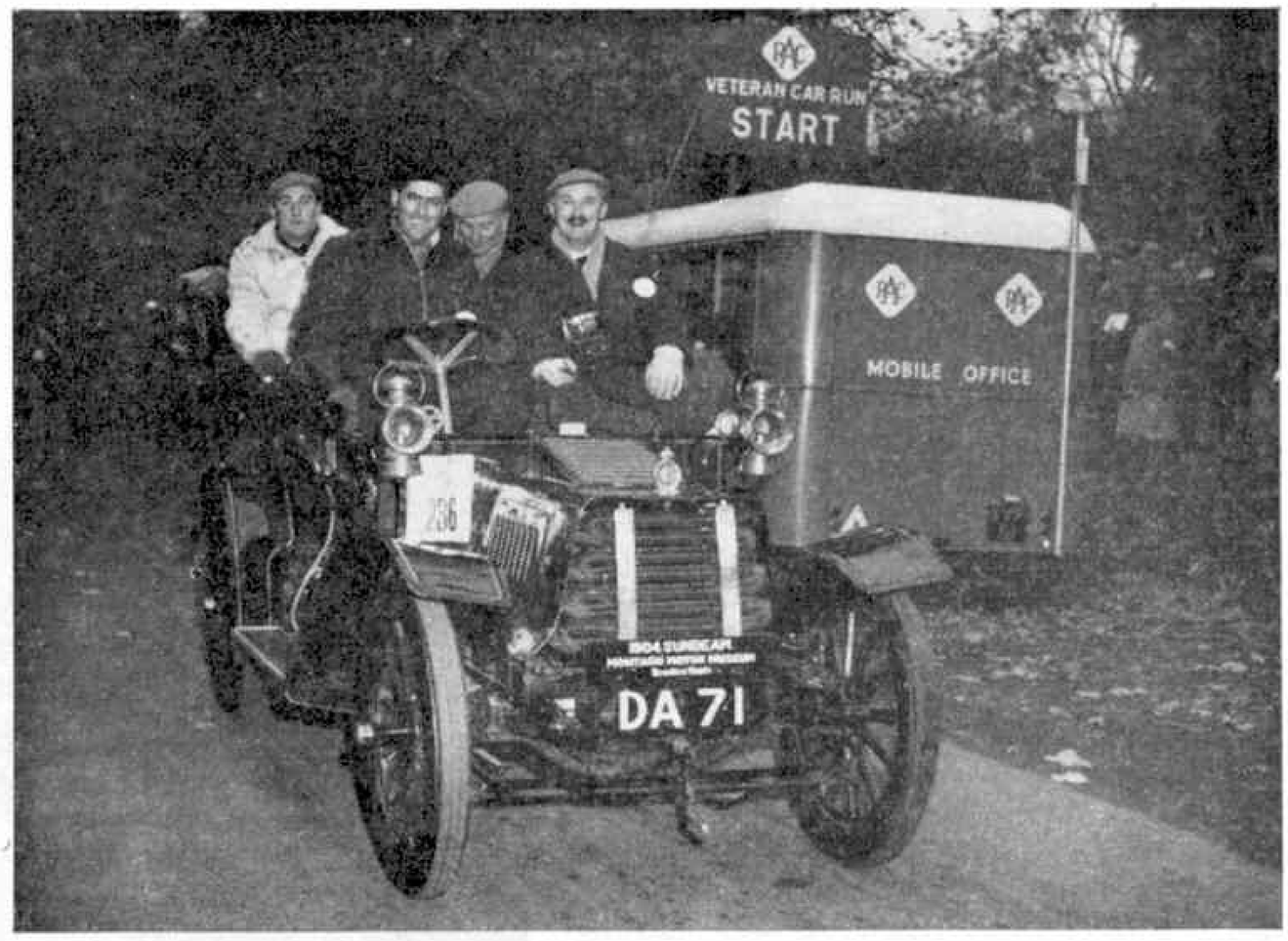
The trim and stability of merchant vessels is controlled by the crew through prudent cargo loading, and by the engineer in particular through proper use of the vessel's oil, fresh water and ballast tanks. At the present time, calculation of a ship's stability and trim can often be a time-consuming process. In an automated ship a central data processing computer will eliminate the need for manual computation. Using data on cargo loading provided before sailing, and information provided by tank level sensors, the required ballast or oil shifting necessary to maintain a suitable degree of trim and stability will be automatically worked out by the computer. A display board on the bridge and in the engine room will keep ship's officers informed of the level of all tanks at any time.

Full automation of engineering operations to the point of requiring zero crew effort does not really appear practical at the present time. In other words, it could be done but would hardly be an economical proposition. Human judgment and action are still the most economical methods to minimise failure probability and/or provide proper corrective action. It would seem, then, that for those of you who seek a career in marine engineering, automation is unlikely to be a rival.

* * * *

Operation of a partially-automated vessel will lead to (*Cont. on page 45*)

Event That Draws A Million Onlookers



A wonderful record for finishing at Brighton in the Veteran Car Run belongs to this 1904 Mabberley Sunbeam, once owned by Sir Malcolm Campbell.

By JERRY AMES

NEARLY a million people must have lined the 50 miles from London's Hyde Park to Brighton for the annual Veteran Car Run. This is one of the greatest sporting events in the world and grows in popularity every year. One policeman told me spectators had been waiting since six o'clock in the morning to watch the cars pass through.

Although it is not actually a race, and the R.A.C., police and other officials would be horrified if it were described as such, there is no doubt that this event, each year, takes on more and more the atmosphere of an old-time town-to-town race, with wildly-excited spectators lining the entire route to cheer and encourage competitors. I wish some of the spectators would temper their enthusiasm with a little more discretion, because the veteran cars have virtually no brakes at all by modern standards, and it is only the skill of their drivers which averts disaster time and time again.

With 250 entries from France, Belgium, Holland, Denmark, Italy, U.S.A. and Britain, the event takes on a truly international flavour, and I was interested to hear comments from pre-war Grand Prix driver Count Castelbarco of Italy, who was taking part for the first time.

"Never have I seen such crowds, nor such interest as on this wonderful run," he said. "Most of all it reminds me of the Mille Miglia in which I have driven many times".

Because of the enthusiasm and the unique atmosphere he has decided to come over for the event again next year.

When the run is ended and crews re-live their glorious adventures over refreshments at Brighton, some of the stories have to be heard to be believed. My favourite this year concerns a famous racing driver. During his spell as navigator the car in which he was travelling was waved down by a policeman near a keep-left island. Its crew did their best with feeble brakes, but had to take the traffic island on the wrong side, in sheer self-defence.

"Can't stop, can't stop; no brakes . . ." yelled the famous racing driver to the police. Fifty yards further on, turning to the man at the tiller, he shouted "Stop! For goodness sake, stop!"

"Now what?"

"You must stop. My false teeth fell out as we passed the policeman!"

Each year many famous drivers travel to Brighton by veteran car and would not miss it for worlds. The 1904 Mabberley Sunbeam illustrated on this page was once owned by land speed record breaker Sir Malcolm Campbell. Last year it was driven by Jack Brabham. This car has a wonderful record for finishing at Brighton.

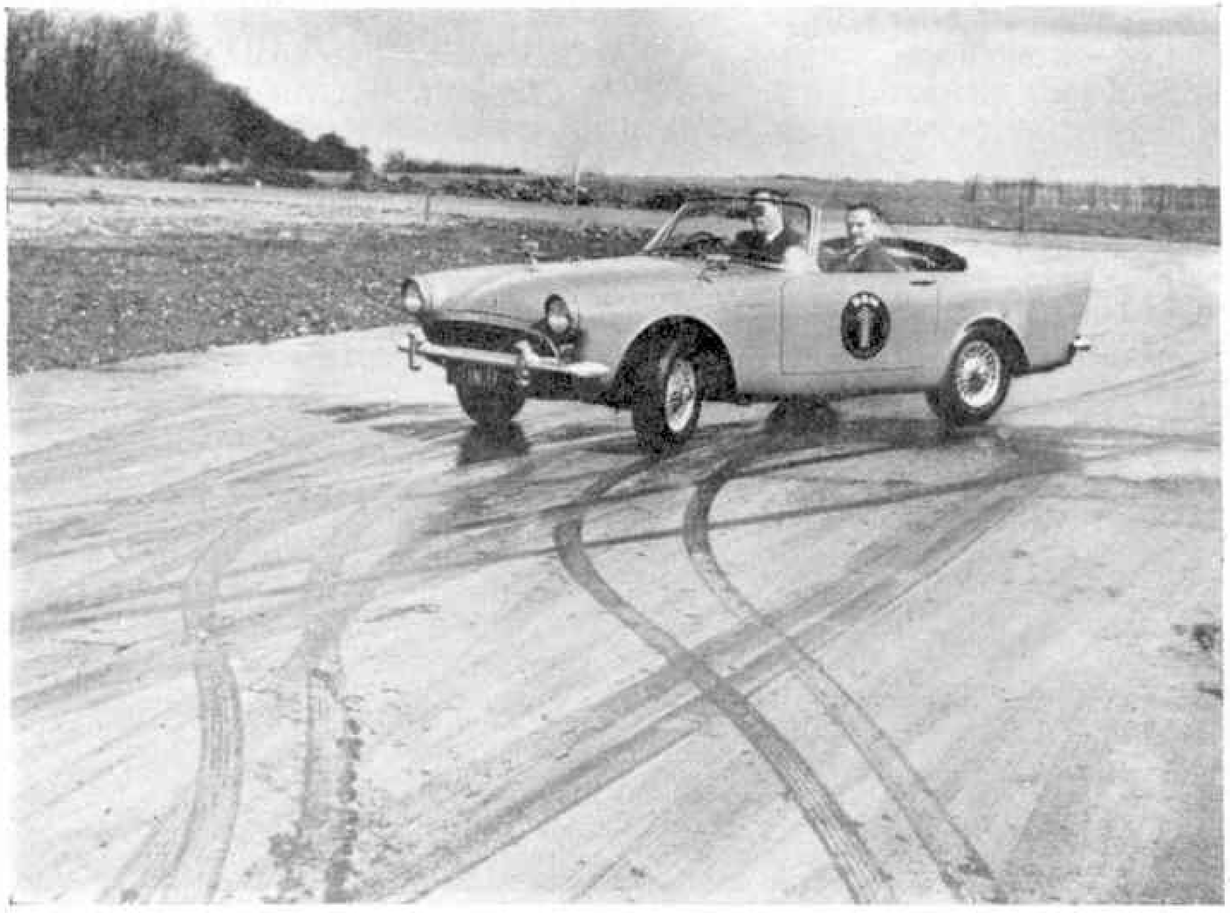
* * * *

Talking to Lord Montagu of Beaulieu, the enthusiastic motoring historian who has two museums of old cars, one at his home, Beaulieu Palace and the other at Brighton, I learned he now has some 50 veteran cars in his care and owns more than half a dozen himself. At Beaulieu, he has the most interesting collection of veteran and vintage cars in the world, including no fewer than half a dozen machines that once held the world's land speed record. Then there are famous Grand Prix cars, from super-charged Sunbeams of more than 35 years ago to the very last straight eight desmodromic valve Mercedes-Benz, the vehicle that swept all before it in the hands of Fangio only seven years ago. There is, in fact, a feast of exciting machinery I never tire of looking at.

* * * *

The Mexican Grand Prix, in November, was sadly over-shadowed by the death of 20-year-old Ricardo Rodriguez. Driving Rob Walker's V–8 Lotus Climax, he lost control on a 120 m.p.h. banked corner, the car turning over before catching fire. Rodriguez died on the way to hospital. I had great admiration for the remarkable skill of this talented driver, the younger of two motor racing brothers, who became

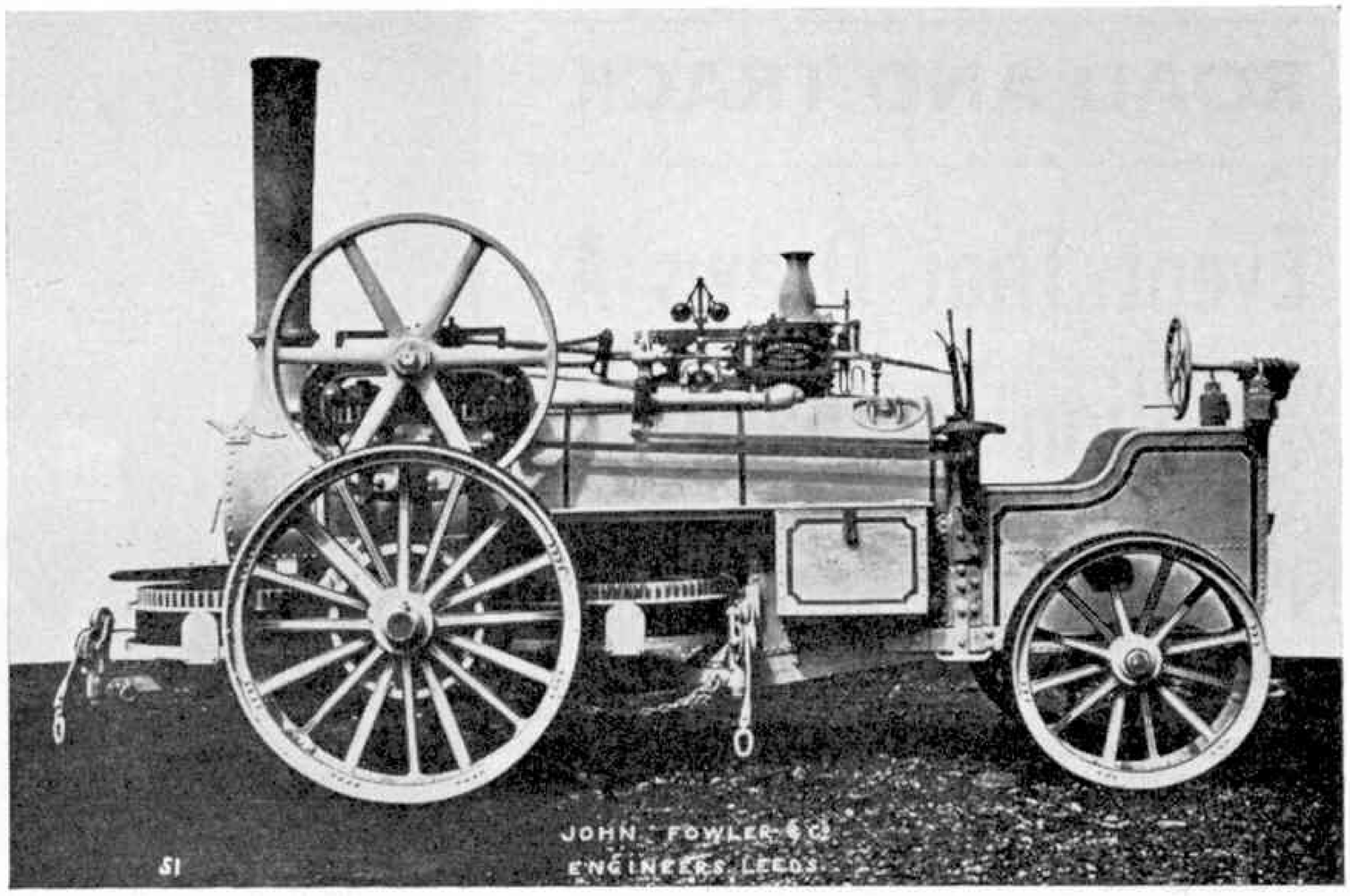
(*Continued on page 46*)



Skid correction techniques are developed on this skid pan at Brands Hatch which is part of the B.S.M.'s High Performance Course.

R. S. McNAUGHT glances back over the years as he describes . . .

Ploughing By Steam



The Fowler steam plough engine No. 414, built in 1867. Illustration by courtesy of John Fowler (Leeds) Limited.

FAR from any railway line it was once possible to see puffs of white engine steam and to hear unmistakable engine whistles. These were signs that steam ploughing was going on, most likely across the broad open levels of Lincolnshire and East Anglia.

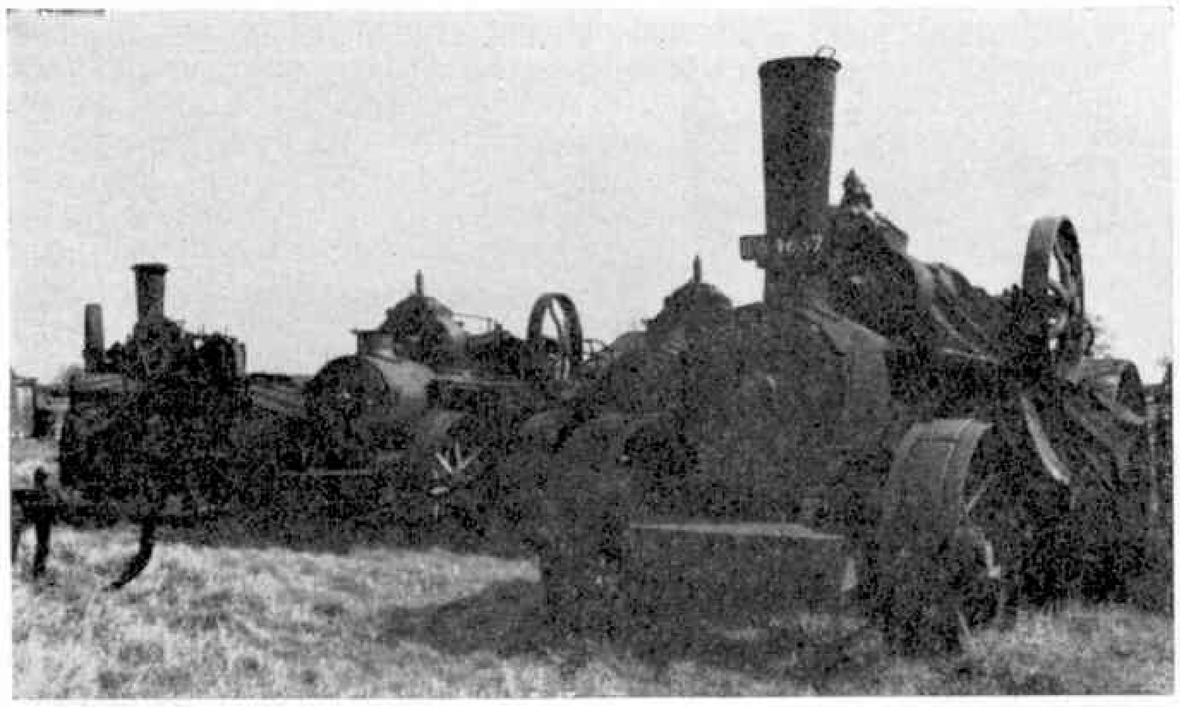
As the plough engines worked in pairs, one at each end of very large fields, their whistles were essential for signalling backwards and forwards, and they used a regular code, like shunting engines in a goods yard. Both the machines and the men on the job were hardy, and the workers themselves were weather-beaten as sailors, with mist or fog their chief enemy.

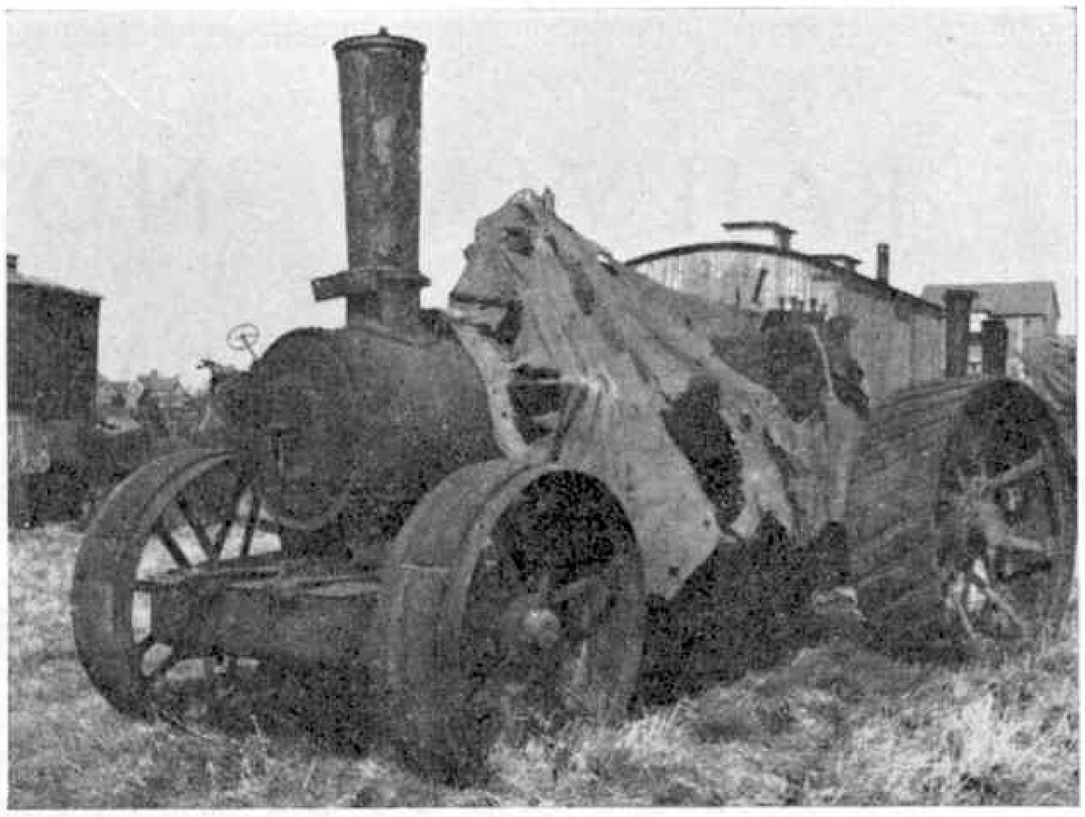
Nowadays, the work is done by tractor, but old hands are still convinced that for thoroughness and economy the "steamers" will never be improved upon.

In a paddock near Sleaford in Lincolnshire, one day last summer, I came across a covey of five pairs of the final type of steam ploughing engines, together with the living vans and the coal and water carriers which they always hauled from job to job. Many of the brass and copper fittings had been removed —even the polished bands which once ornamented the chimney-tops of some of them, and oxygen tubes on a nearby lorry indicated that the final cutting-up was at hand. But they made an impressive, if melancholy sight, for ploughing engines were the biggest and most robust steam tractors ever built.

Old prints of the earliest traction engines for agricultural use show a pair of shafts for a horse. Although the engines were self-propelling, the horse did the steering, and this quaint idea was kept up even after a good system of mechanical guidance had been devised. This was a case of animal psychology; in days when horses were apt to shy on the approach of a steam engine, which was then a rarity, the sight of one of their brethren leading it calmed their fears somewhat and they would pass it without much fuss.

Steam ploughing is seen here being carried out with a 10-furrow "balance-plough" and a pair of Fowler compound engines.





Top: The end of the trail: this picture of a group of derelict plough engines was taken near Sleaford—"an impressive if melancholy sight", says the writer of this article. Right: Another old-timer. These two photographs are by R. C. Anthony.

Two British firms of engine builders appear to have pioneered steam ploughing —John Fowler, of Leeds, and C. Burrell (afterwards Chas. Burrell & Sons, Ltd.) of Thetford, Norfolk. A poster is still preserved inviting anybody interested to attend a trial of "Ploughing by Steam" at Croxton, near Thetford, on May 7 and 8, 1857. Two months later the same engine and ploughs were taken to Louth, in North Lincolnshire, when it was demonstrated that one acre could be ploughed by the new method in 73 minutes, the cost of coal and labour working out at only 32s. In this connection it must be remembered that the weekly wage of the traction engine driver was then only 25s.

One of the reasons why ploughing by direct steam traction never became popular was the compressing of the ground in front by the comparatively heavy engine. It is a difficulty that has cropped up again to a lesser degree with the modern tractors and it led to the development of the drum-fitted plough engine. Messrs. John Fowler of Leeds, a firm which designed and built every type of road and agricultural steam engine in considerable numbers, produced, in the early 1860's, a plough engine which did not have to move over the field. As Fowler's workshops in Leeds were inadequate for all the orders that poured in, other firms—including Burrell's at Thetford—built these engines under licence.

The plough engine newly evolved had a large drum—the "clip drum" it was called —below the boiler, and around this was coiled the rope (later a steel cable) which was attached to the plough or other appliance to be drawn.

* * * *

Through the kindness of John Fowler (Leeds) Limited I am able to reproduce for you a rare photograph of one of the earliest designs of steam plough engine. The makers' plate below the Salter safety valve bears the date 1867, when No. 414 was photographed new.

It will be seen at once that the general layout of this early machine was directly opposite to what later became standard for most traction and other similar engines. With the carrying-wheels at the rear, supporting what was then called the "manstand" and not the cab or footplate, and a steering pinion mounted over the bunker, it seems likely that the engine moved from job to job with its smokebox end trailing. The presence of a pair of small lamps to be seen mounted on the top corners of the coal bunker strengthens the belief. One other prominent feature is the placing of No. 414's cylinder on the firebox end of its boiler. Between the cylinder head and the driver's control levers can also be seen a small whistle, very uncomfortably sited, one would think.

At a glance, No. 414 would appear to be very much under-cylindered, but the side view prevents one seeing that there was a pair of "Duplex" simple cylinders, of 7 inches diameter by 12 inches stroke. In later years, as the overall dimensions were increased, a small high-pressure, and a large low-pressure, cylinder on the compound principle became standard.

When a single engine utilising the clip drum was engaged in ploughing, the procedure was as follows. The engine was placed on one edge of the field, with an anchor stake exactly opposite on the far side. Both were moved forward along the headlands, and between them the plough—or other implement—was pulled backwards and forwards, the plough being so designed that one end of it was alternatively in the air and the other in the ground, thus avoiding the necessity of turning the plough round. A man who rode on the plough (it was generally termed a "balance-plough") could easily reverse it, or "swing" it, at the end of the furrow.

The winding drum on the engine was of 5 foot diameter, the groove into which the rope passed being formed of a double series of small clips which, on the least pressure being applied, clasped and held the rope until it took a straight line on the other side, when they opened freely and released it. By this means, all crushing of the rope and short bends was eliminated, the rope being bent only twice on each passage of the plough. The clips, of chilled cast iron, could be replaced easily and cost little.

In 1879, a small foundry at Great Ryburgh, near Fakenham, Norfolk, devised and patented a different style of plough engine which had the winding drum in a vertical position. Very many were built, being known as the "Universal" type, but they were also called "Everitt Plough Engines" after their designer. They bore a distinct likeness to a paddle-wheel steamer, and were among the first compounds. The rope, on leaving the drum, was led around a large, grooved pulley mounted beneath the engine's footplate, and then away to the plough at an angle to the stationary engine. The larger "Universals" mounted a pair of drums with 800 yards of rope or cable accommodated on each drum.

But the practice of steam ploughing gradually became concentrated on the Fowler method of using a pair of engines, each alternately drawing the plough towards itself, the engine not at work paying out the cable while at the same time moving slowly forward into position for the return haul. A pair of such engines, with their drivers and an expert ploughman, would visit farm after farm in a prearranged tour and, in quick and efficient style, deal with even the heaviest and most obstinate land.

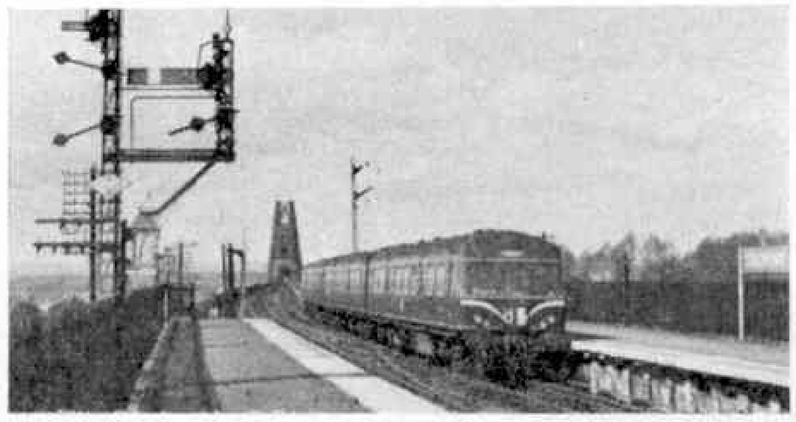
They sometimes had mishaps, most frequently on first visits when the inexorable engine-drawn plough encountered a rock or an unsuspected tree root. Until an automatic slip device was used, sudden stoppage of the implement resulted, unless the engine-driver was very quick, in the cable snapping and flying back with velocity that could cut a man in two.

* * * *

It was on a gloomy winter day only two years ago that I unexpectedly came across steam ploughing in full swing on one of the wide stretches of fertile land reclaimed from the Wash, in Lincolnshire. The measured throbbing noise of the big Fowler compounds was unusual in these days of diesel sounds, and the spectacle of the "balance-plough" moving sedately across the landscape with its solitary rider, and a flock of (*Continued on page 21*)

RAILWAY NOTES

Contributed by R. A. H. Weight

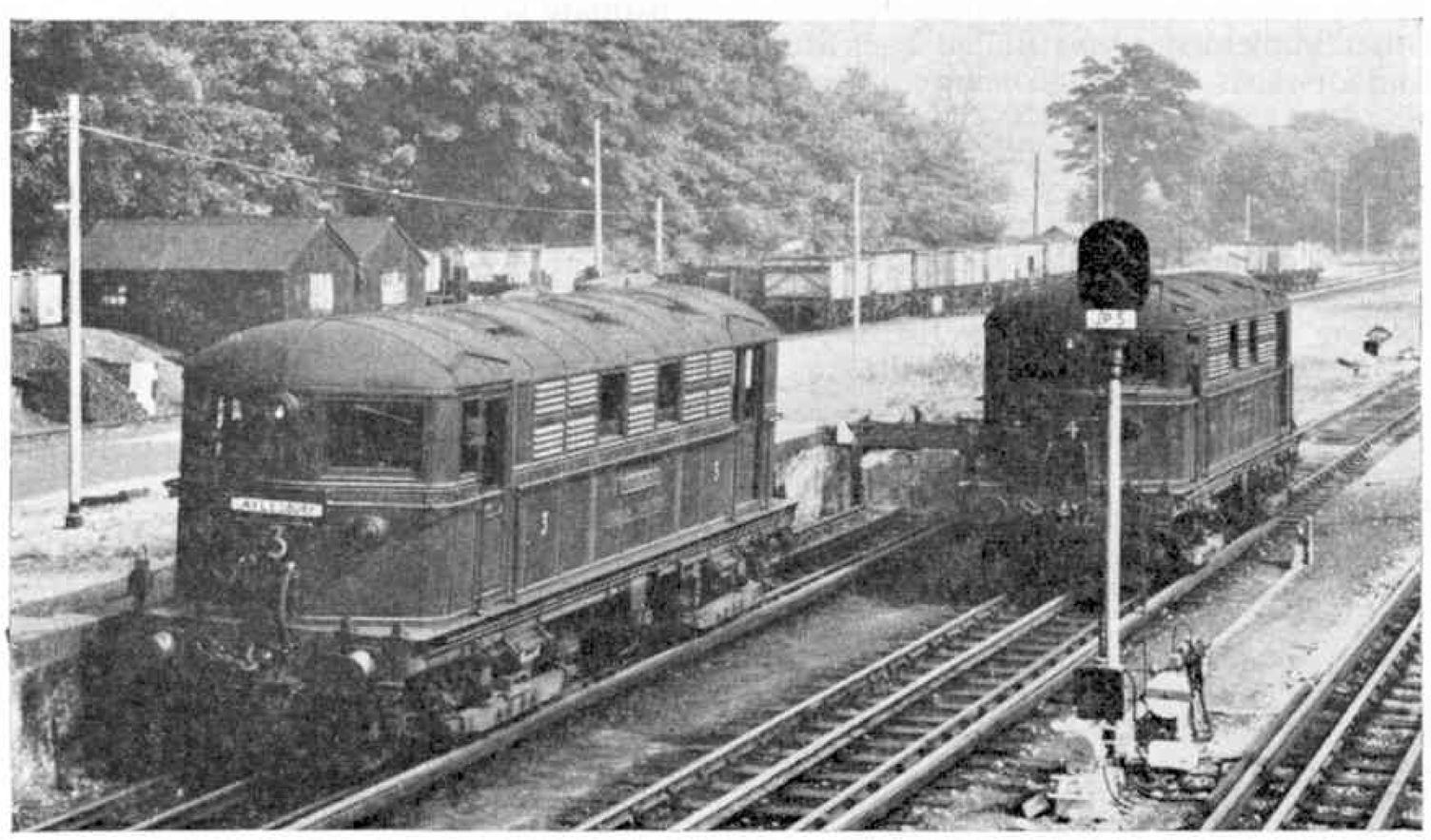


By "Silver" Electric To Amersham

THE former Metropolitan Railway Aylesbury line from Baker Street, constituting the longest suburban and country section of the London Transport railway system, has gradually been modernised and improved. For many years, electric four-rail traction was in operation as far out as Rickmansworth, in Hertfordshire, a distance of seventeen miles. Rather small electric locomotives designed and built early in this century, since rebuilt and named, as shown in the main illustration on this page, exchanged trains there with, for example, Metropolitan 0–4–4 or 0–6–4 tank engines at one time; later with L.N.E.R. L1, then L.M.S. type, 2–6–4T steam locomotives.

By June last, a vast transformation was completed involving reconstructed bridges and platforms, highly-modernised signalling, etc., when four tracks were in use through Pinner and Northwood from Harrow-on-the-Hill to the triangular junction for the Watford branch at Moor Park, not far south of Rickmansworth. Electric trains began running through to Amersham, Bucks, almost 24 miles from London, and on the intermediate four-mile single-track Chalfont–Chesham branch. The long-familiar ex-Metropolitan teak compartment coaches, locomotive-hauled as well as multiple-unit sets, have been replaced by spacious new A60 type "silver" trains of four or eight saloon-type cars having centre gangways, power-operated sliding doors, and driving compartments at each end. They are constructed of light alloy metal and, in accordance with the new L.T. practice, are unpainted.

Below: Before the Metropolitan Line electrification to Amersham. A scene at Rickmansworth, where C. R. L. Coles photographed electric locomotives No. 3 "Sir Ralph Verney" and No. 4 "Lord Byron", waiting to take on London-bound trains that were at that time steam hauled between Aylesbury and Rickmansworth. The heading block this month, from a photograph by T. G. Hepburn, shows a Scottish Region diesel railcar train entering Dalmeny Station, having just crossed the Forth Bridge, shown end-on in the background.



I went comfortably from Baker Street to Amersham in one of these trains in less than the 45 minutes allowed, including six stops, the run finishing with a sharp climb into the Chiltern woodlands where much residential development has taken place. It is a busy route on the way down with flyover and burrowing junctions carrying fast trains, and frequent electric local services including Bakerloo Tube trains. During peak hours, Amersham trains run through to and from London City stations via Baker Street and King's Cross (Underground). Former Great Central line Marylebone tracks are separate, on the west side, from the four Metropolitan ones as far down as Harrow North junctions where they merge into the new fast "Met." lines.

Regular-interval fast diesel units now provide the passenger service between Amersham and Aylesbury, some going further north. I returned in one from Amersham to Marylebone taking barely 35 minutes, calling only at Chalfont, Chorley Wood and Harrow. Through the front windows I had a good view of an ex-L.M.S. class 5 4–6–0 climbing the gradient at the head of the 12.38 p.m. Marylebone – Nottingham principal-stations express.

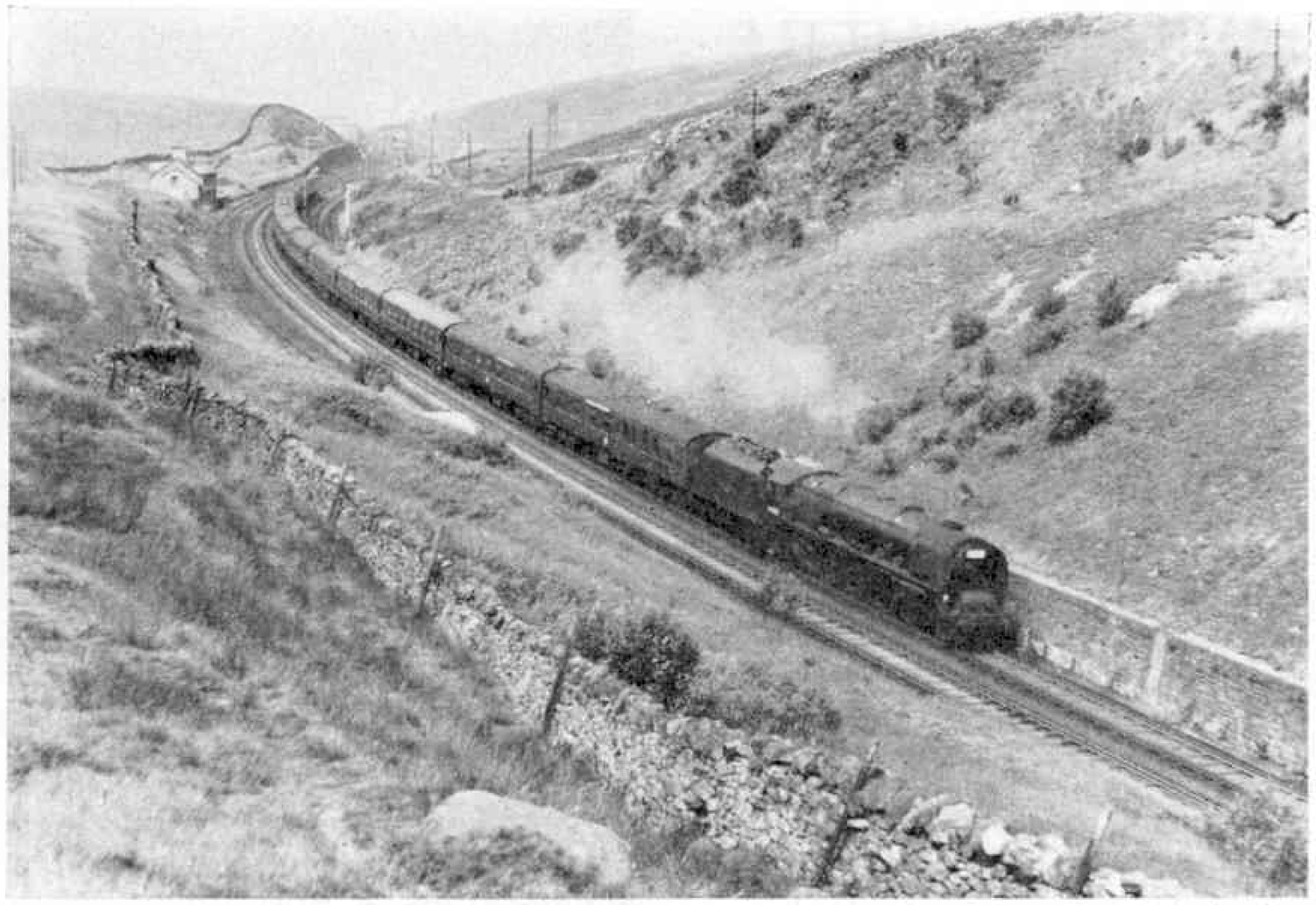
"THE HEART OF MIDLOTHIAN"

Until last summer, there had never been an express timed to cover the Edinburgh–London trip in less than seven hours and still call at five important stations. When I recently rode the southbound *Heart of Midlothian*, with a departure from the Scottish capital at 1.30 p.m., it was a well-filled, 13-coach train weighing nearly 500 tons gross, behind Deltic No. D9013. In spite of a signal stop and quite a number of additional slowings south of Doncaster, the 393-mile journey was completed almost exactly as then booked in 6 hours 53 minutes.

As far as York, at any rate, I logged that day decidedly my fastest comparable start to stop runs, summarised as follows: Edinburgh–Berwick, 57½ miles in 55 minutes (allowed time 59 minutes); Berwick–Newcastle, 67 miles in 61¼ minutes (allowed 63); Newcastle–Darlington, 36 miles, in 37¼ minutes (allowed 39); Darlington–York, 44 miles in 36 minutes at an average of 73½ m.p.h. with that heavy train (allowed 37). The maximum touched was 90 m.p.h., with quite a lot of 70–85 m.p.h. travel over various grades and undulations. Allowing for the extra calls, the schedules of the high-speed, 11-coach one-stop, *Flying Scotsman* or *Talisman* were equalled.

From restart at Grantham the last 105½ miles to King's Cross were covered in 106 minutes, including two bad repair slacks, by dint of remarkably steady running uphill and down without exceeding 82 m.p.h.—obviously with quite a lot in hand. It was a most comfortable and enjoyable daylight trip, including good tea and dinner, and favoured by clear sunshine along the northern scenic stretches. Engine crews were changed at Newcastle and Grantham.

The corresponding northbound express leaves King's Cross at 2.0 p.m. and makes seven stops. It is due in Edinburgh at 9.0 with Glasgow, Dundee, Perth and district connections, as for the southbound service. The southbound service also conveys through carriages from Aberdeen, via the East Coast route, as I described in my Notes in the *M.M.* last October.



Steam in a hurry! No. 46252 "City of Leicester" about to sweep southward from Shap Summit, where Derek Cross was waiting to photograph this Glasgow–London train.

THIS MONTH'S PICTURES

A good deal of interest attaches to some of the locomotives and trains featured in this New Year issue, at a time of considerable change in the British railway scene. *The West Riding*, pictured on the front cover and described briefly on the Editorial page, is a breakfast-car express, the first of the fast day Deltic-hauled services, leaving Leeds at 7.30 a.m. and King's Cross at 7.45 a.m., every weekday. The northbound train conveys a through portion detached at Retford, reaching Sheffield in two and three quarter hours at 10.30 a.m.

City of Leicester is a large 4–6–2 of the former L.M.S., one of the most powerful British steam express types. It figured in an excellent run over Shap and Beattock Summits with heavy load on *The Mid-Day Scot*, as I reported in these Notes some years ago. These 4–6–2s were still appearing at the time of writing on ordinary and special trains to and from Euston, Liverpool, Glasgow, or elsewhere, although diesel or part-way electric haulage has become much more usual.

The Norseman summer expresses connect with the Fred Olsen or Bergen Line sailings between Tyne Commission Quay, near Newcastle, and Norwegian ports, running alongside the ships. The main line locomotive between Newcastle, Central, and King's Cross last season was often a Pacific.

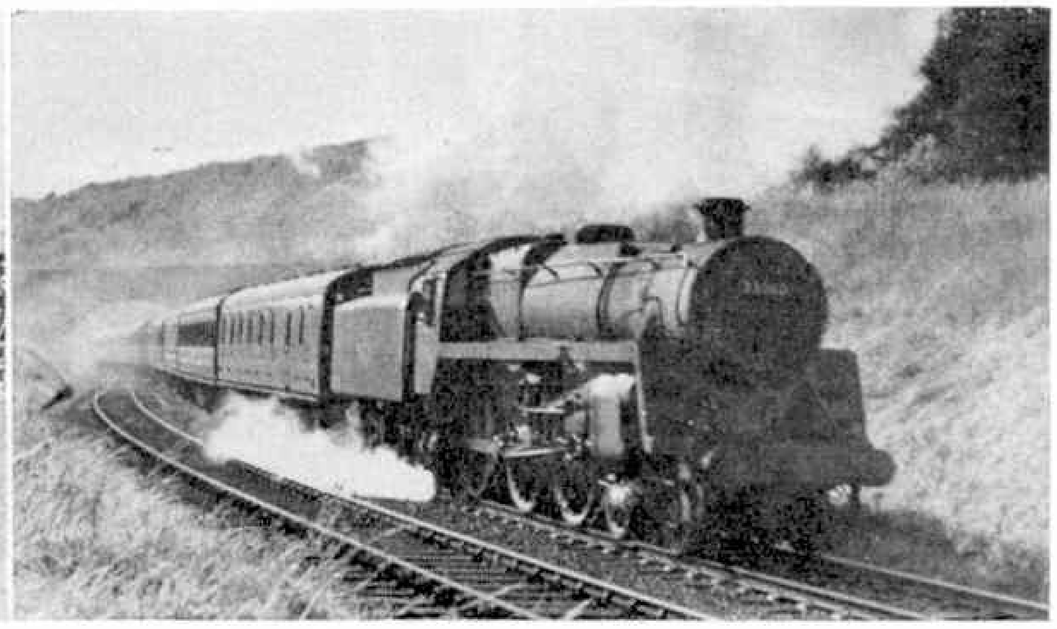
B.R. Standard class 5 4–6–0s, constituting one of the last general service steam locomotive designs, are very widespread in operation. They are seen, for instance, at Salisbury and Bournemouth, and also on many parts of the London Midland Region, including the former Great Central Line and, in Scotland, from Ayrshire or beyond to Glasgow, Perth and Aberdeen.

* * * *

Additions to the W.R. fleet of 2,700 h.p. diesel-hydraulic main line locomotives were lately announced. They carry numbers and names as follows: Nos. D1008–11, respectively named *Western Harrier*, *Western Invader*, *Western Campaigner*, *Western Thunderer;* Nos. D1036–43 respectively: *Western Emperor*, then—each preceded by *Western—Empress*, *Sovereign*, *King*, *Queen*, *Prince*, *Princess*, *Duke*. A number are appearing painted maroon.

Fourteen new Ruston–Paxman 275 h.p. diesel-electric 0–6–0 shunting engines, Nos. D2985 upward, replacing American and former L.B.S.C.R. and L.S.W.R. small tank steam locomotives, have been allocated for duty in the extensive Southampton Docks. They are painted light green, with black and amber chevrons to make them more prominent on approach.

Left: Modified A3 4–6–2 No. 60039 "Sandwich", with double chimney and smoke deflectors, heads "The Norseman" past York South. Photograph by C. Ord. (Right) Standard Class 5 4–6–0 No. 73060 breasts Craighead Summit, near Killochan, with a Girvan–Glasgow train. Photograph by G. H. Robin.



BUILDING "LITTLE BRITAIN"

Hobby That Became A Career

IF your travels ever lead you to Somerset, be sure not to miss the opportunity of visiting Little Britain. You won't find it on a map for the simple reason there is no such place as far as Ordnance Survey is concerned. It is, in fact, a kind of Alice-in-Wonderland place. It has a church without a congregation, a post office where you cannot even buy a stamp, and lots of picturesque houses for a population that does not exist.

All this just doesn't make sense—until you discover that Little Britain is a model village on the sea front at Weston-super-Mare. It consists of more than 40 buildings and covers half an acre. The term "model village" is not strictly correct, for actually Little Britain includes the prosperous country town of Compton Fiddlestix and the village of Stocks Green. The whole is intended to represent a composite picture of all that is best in rural Britain.

By

TREVOR HOLLOWAY

Little Britain took four years to build and nine months to "marry" to the site—a thousand miniature shrubs had to be planted, lawns established, and 300 electric lights installed, while no fewer than 60 tons of Forest of Dean stone were used in the landscape work. The project cost over £10,000 to complete and a glance at the photographs on this and the following page will show the marvellous attention given to detail. The scale employed was 1 inch to 1 foot.

Let us take a stroll around this Lilliputian masterpiece. Compton Fiddlestix has an imposing guildhall, solid old stone hotel (the Falcon), alms houses, fire and police stations, antique shop, cafes and so forth. On the far side of the river stands

Two young explorers (top picture) find delight in the town centre of Compton Fiddlestix. Centre is shown Joshua Fidgett's mill and mill yard and the bottom illustration is of a modern type bungalow known as Druid's Folly.

St. Crispin's College, complete with chapel from the interior of which comes the sound of organ music. As a back-cloth, the town has a medieval castle with moat and waterfalls.

Beyond the town is Joshua Fidgett's mill and mill yard, and the village of Stocks Green where, we are told, live most of the people employed at the mill and the adjoining riding school and forge.

On reaching Heathcliffe Estate we cross a bridge and come to Home Farm, with its glasshouses, farmyard, oast houses and cottages. As we make our way towards the very fine William and Mary manor house we pass the local hunt in full cry. Obviously the tenant of the manor is a man of wealth, for we see a beautifully-kept tennis court, a rose garden (with real miniature roses growing) and a vast terrace with a fountain gushing up between bronze statues.

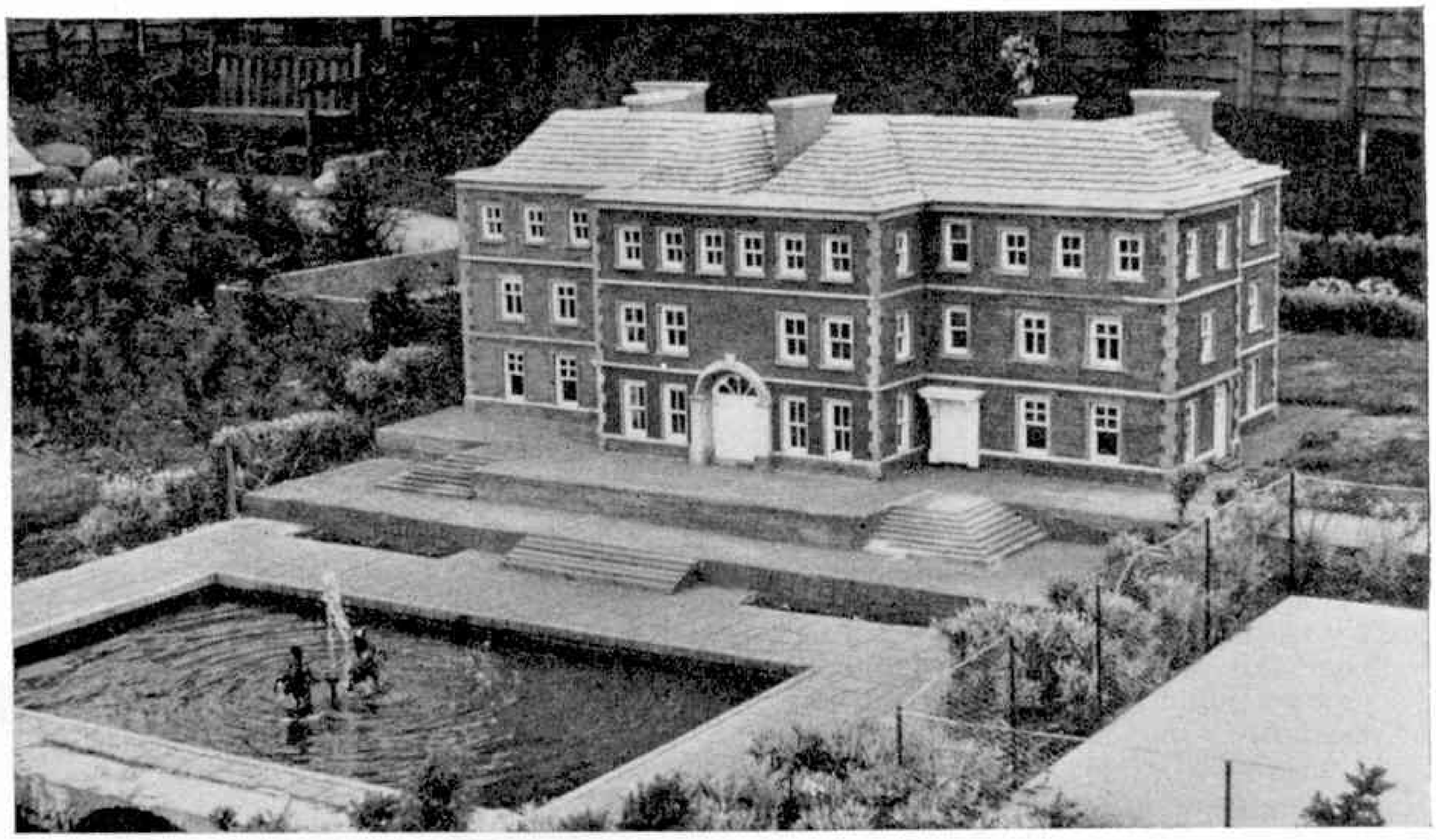
Leaving the estate, we come next to Tarnock Abbey—now in ruins—around which the town of Compton Fiddlestix grew up. Overlooking the Abbey is the White Hart Inn, a fine clap-board coaching house in a very good state of preservation. And so back to Compton Fiddlestix from which point our tour began.

By the way, Little Britain was opened by Armand and Michaela Dennis who were made Freemen of the Village for services rendered. The then Mayor of Weston-super-Mare, Councillor E. B. Moore, is the only other holder of this honour.

The story behind the building of Little Britain is the story of a man who made his hobby his profession. He is Mr. S. E. Deboo, of St. Leonard's-on-Sea, who has also designed other model villages at Ramsgate, Hastings and Eastbourne.

Says Mr. Deboo, "Ever since I was old enough to carve my initials on the dining room table (and in spite of the hiding I got for it!), I have been passionately interested in wood carving and model making. Later, this was coupled to an equally great interest in landscape gardening—and, in particular, rock work and the growing of miniature shrubs and flowers.

"At the age of thirteen I was very fortunate in being given the opportunity of working with the late Roland Callingham, who designed and built the first model village in the world—at Bekonscot, in Buckinghamshire. My work is also my pleasure and my hobby. I get as much joy from acquiring a new dwarf conifer as other people get from collecting works of art."



The imposing manor house at Heathcliffe with its tennis court and immaculate gardens.

A full-time gardener is employed to tend the lawns and miniature plants. Another full-time member of the staff is Miss Jacqueline Saunders who became modeller on the site after four years' study at Birmingham Art College. Actually, Miss Saunders made many of the models on the site and will be adding others from time to time. With 40 buildings of many types to keep in a first-class state of repair, Miss Saunders finds her job as builder and maintenance engineer a full-time one indeed. But, like Mr. Deboo, she enjoys every moment she spends at the craft of modelling in miniature.

A NEW BOOK FOR RAILWAY ENTHUSIASTS

Mention of the name of Wagons–Lits immediately brings to mind luxurious hotels, and equally luxurious railway travel across the frontiers of Europe. The Compagnie Internationale Des Wagons Lits Et Des Grandes Express Europeens, was founded in Belgium in 1876 and has for 86 years operated dining and sleeping cars on the main lines of the Continent and to a lesser extent in countries such as Egypt, Turkey and North Africa. It was this company which provided rolling stock for the romantically-named *Orient Express*, which has seen so many changes of route in its long history which came to an end in 1960. Wagons–Lits cars can even be seen in Britain, on the *Night Ferry* service operated over the Southern Region of British Railways between London (Victoria) and Dover and then on to Paris via the Dover–Dunkirk Train Ferry and the Nord Region of the French National Railways.

Grand European Expresses by George Behrend (Allen and Unwin, price 35/–) is a book which is packed full of Continental atmosphere. It covers the history of the company, its services and rolling stock, old and new, from the elegant trains of the late nineteenth century to the car sleepers of today. One is amazed at the efficiency of this vast concern, which has successfully managed to conduct its operations in spite of wars and political changes, and whose staff—widely experienced and very knowledgeable—saw to it that everything required put the transport and comfort of passengers throughout many countries in the right place at the right time.

Rome Express and *Nord Express* are names which bring distant places to mind. These and many other trains and the engines which haul them receive full attention. There is also a varied selection of illustrations, some of them of considerable historical interest, which helps to give the book an international air and enables the reader to form some idea of the rolling stock employed over the years.

The Armistice was signed in a Wagons–Lits car in 1918. The car concerned was No. 2419 and the full history of this most famous of all Wagons–Lits vehicles is given. It came to a sad end during the second world war.

To those readers who have travelled in Europe the book will have a special appeal, and it will probably awaken, in those who have not yet ventured to the Continent the desire to travel and to sample the Wagons–Lits service.

Ploughing By Steam—

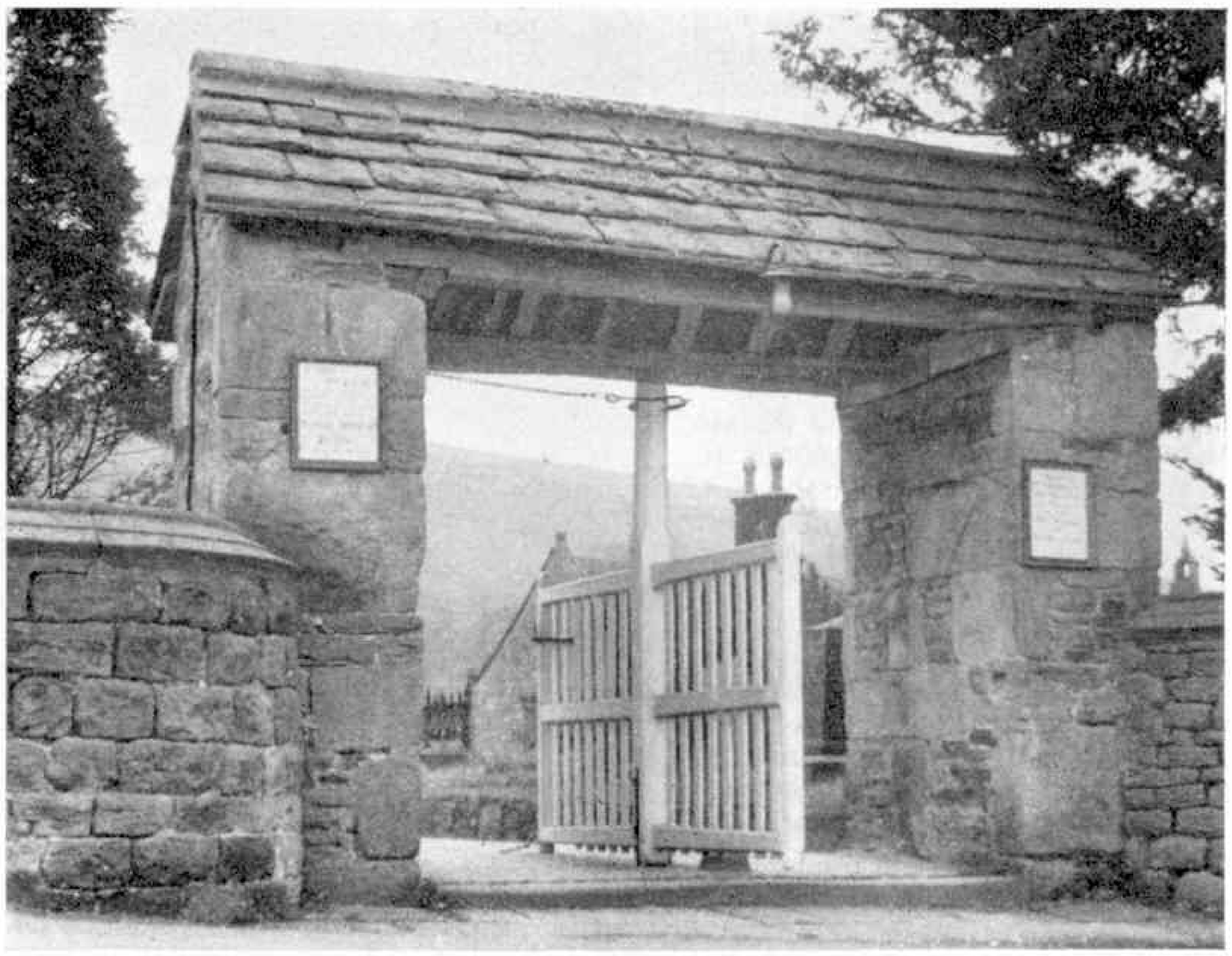
(*Continued from page 17*)

following seagulls, caused many motorists to stop and watch a very efficient—and economical—operation in agriculture. Many onlookers commented on the trim and polished appearance of the nearest engine, so very different from the occupants of the "graveyard" at Sleaford. It seems that ploughing by steam is now defunct.

A QUEER TURN

ALTHOUGH revolving doors are a modern idea, turnstile gates are nothing new—as the picture on the right shows. The turnstile illustrated gives entry to the churchyard at Burnsall, Wharfedale, and was made a long time ago.

Its most unusual feature is the device which automatically closes the gate. Round the top of the pillar on which the gate revolves is wound a strong chain. This is carried over pulleys and the free end, carrying weights, hangs inside the hollow left-hand stone structure which supports the roof. The weights are heavy enough to turn the gate by pulling on the chain, so that there is no possibility of the gate being left open carelessly.



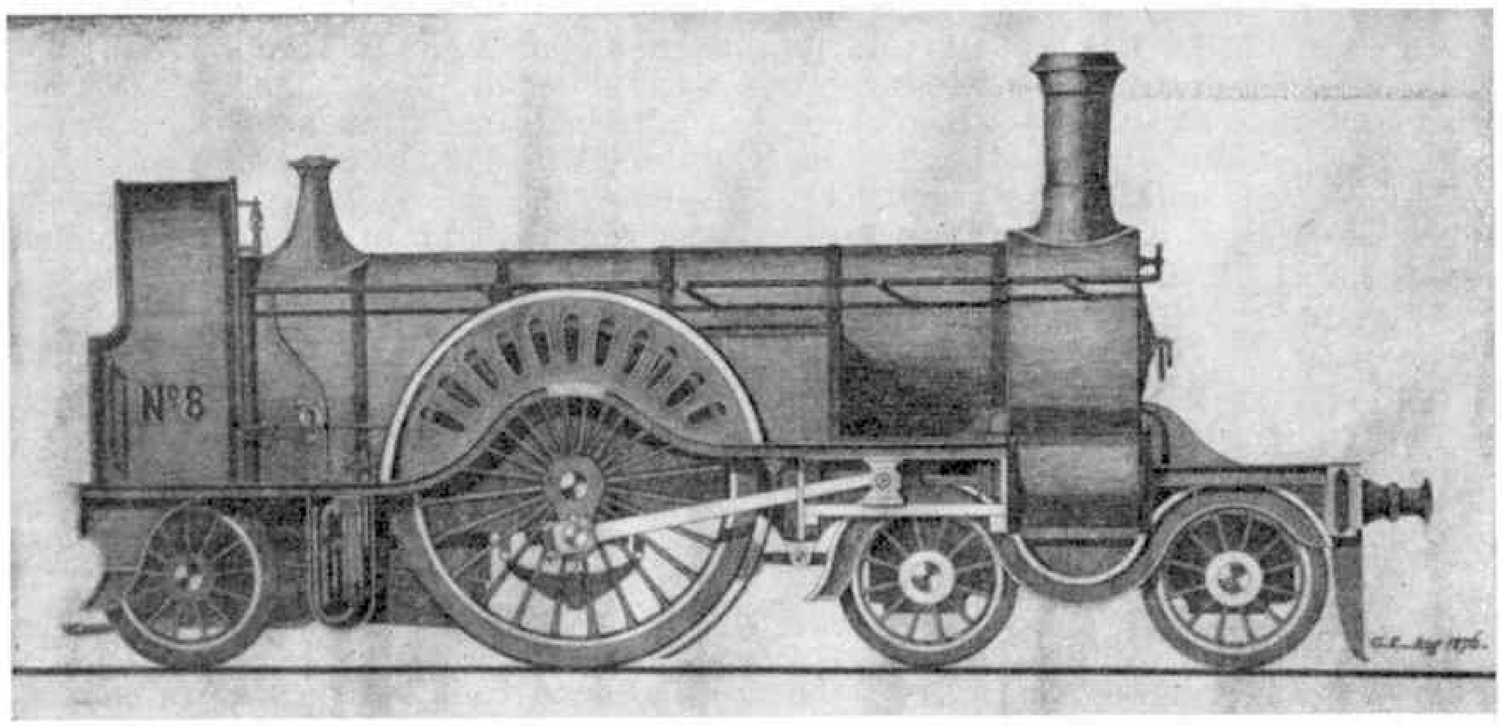
OF GENERAL INTEREST

This lychgate is so unique that when its removal was necessary for materials to be taken into the church, during alterations in 1890, every stone in the gateway was carefully numbered and stored, enabling it to be rebuilt afterwards.

You could easily build a working model of this lychgate with Meccano Parts.

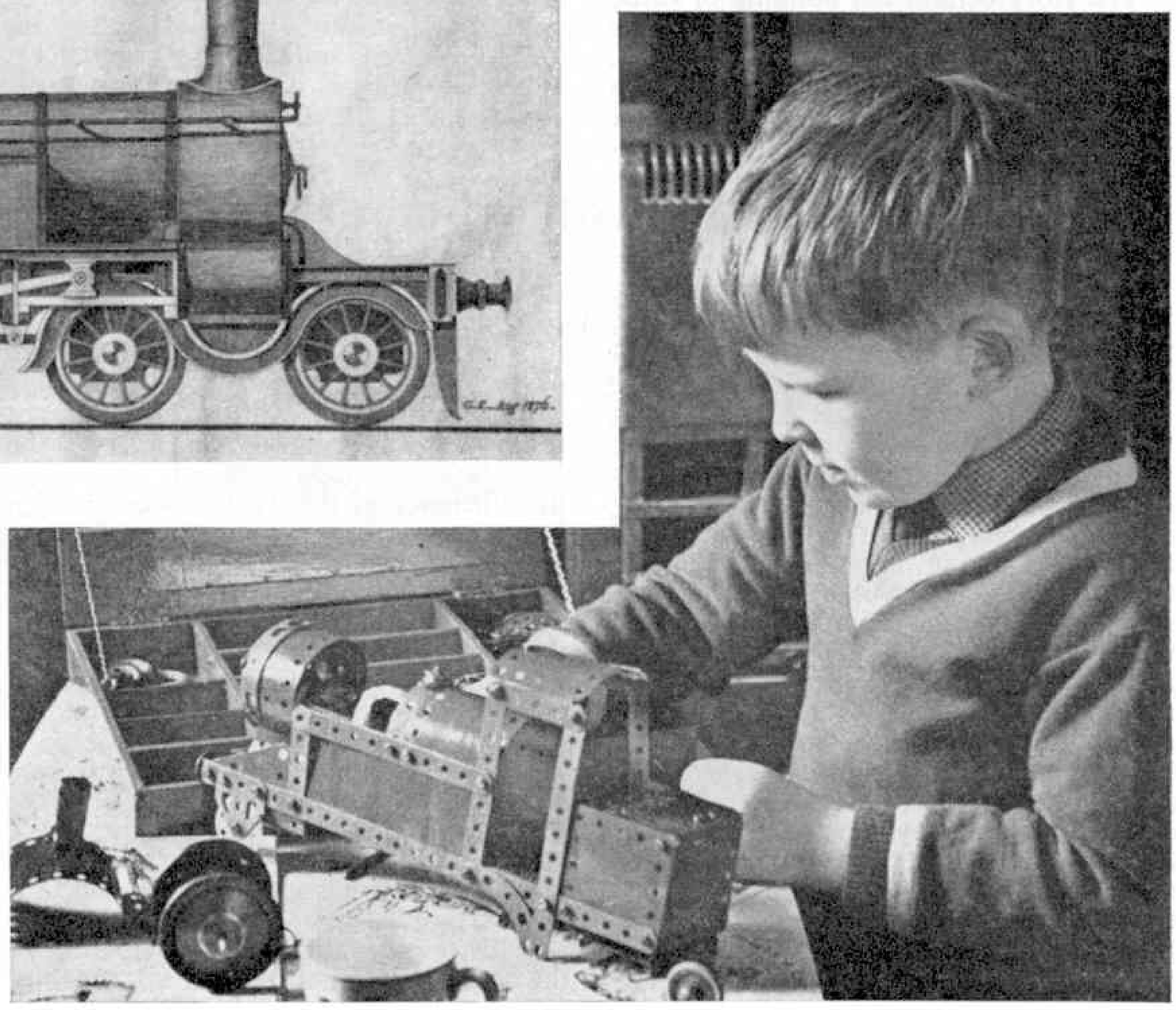
THE photograph of a Patrick Stirling "Eight-foot Single" shown here comes from M.M. *reader A. D. Browning of Ramsgate. It is reproduced from a fine drawing on linen which measures 24 inches × 15 inches and which, Mr. Browning states, was discovered by his wife recently at a jumble sale. The drawing from which the picture is taken is dated 1876.*

This early 4–2–2 locomotive, built in 1870, was operated by the old Great Northern Railway Company between King's Cross and York. The pioneer locomotive is now in York Railway Museum and details of it are as follows: Cylinders 18-inch diameter, 28-inch stroke; Heating surface 1,165 square feet; Wrought iron driving wheels 8 feet 1 inch diameter.



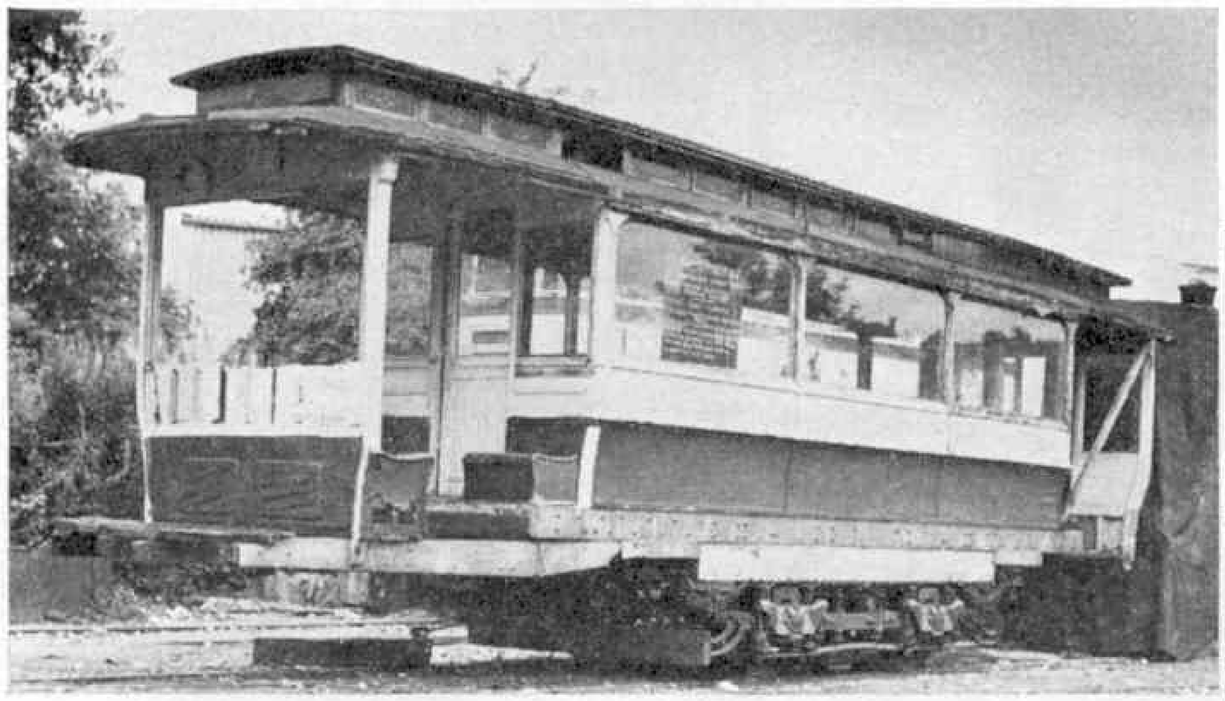
Young Enthusiast At Work

The picture on the right shows Andrew Copsey of Gildersome, near Leeds, whose father, Mr. H. Copsey, submitted this picture to the Editor. The chief point of interest is that Andrew is only five-and-a-half years old and yet he has been making Meccano models since Christmas 1961. And, says his father, he enjoys it very much.



PICTORIAL FEATURE By John Topham

TRAMWAY MUSEUM



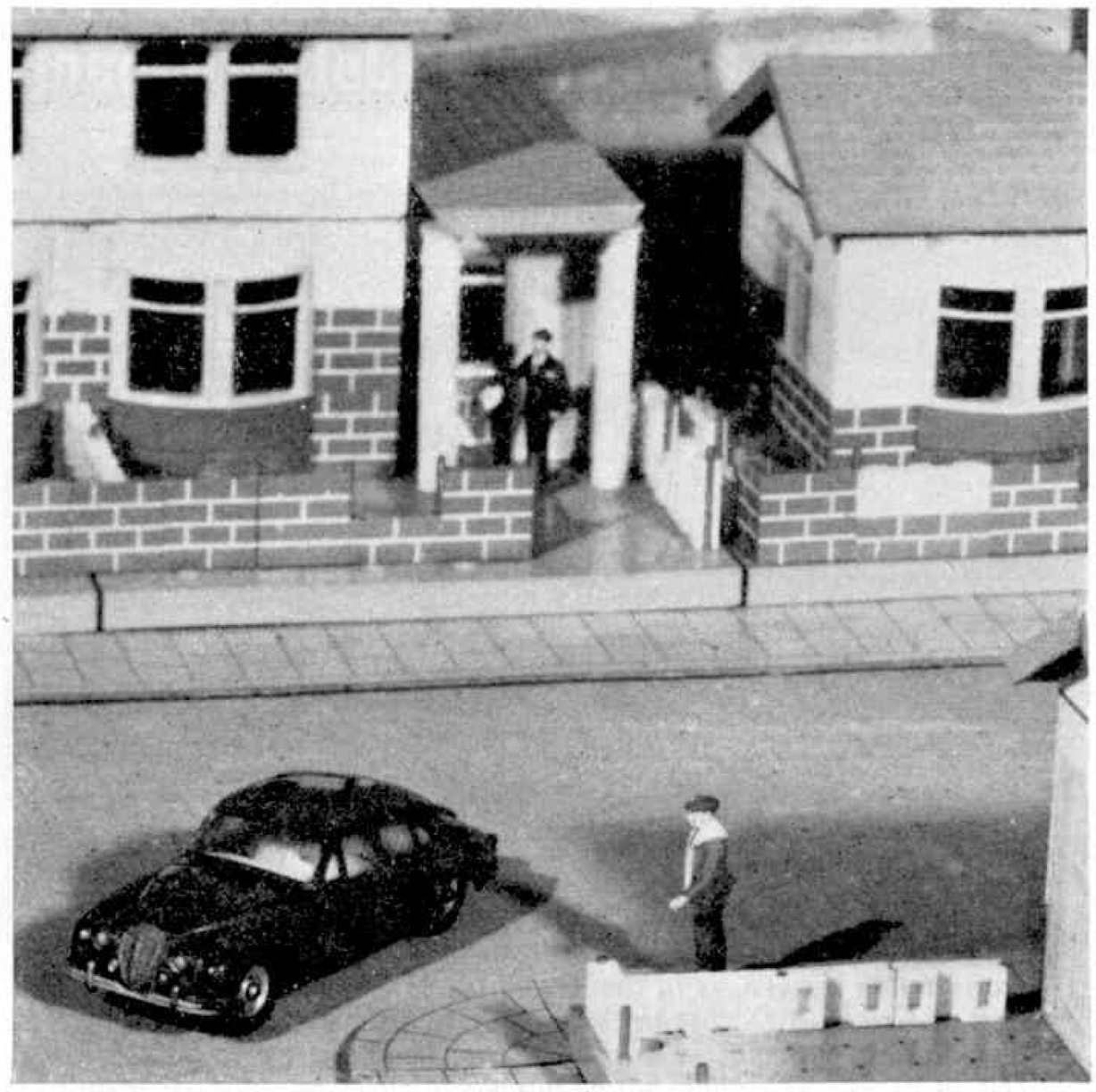
Ten years ago, a 15-years-old Glasgow boy Ian Stewart, fell in love with a tramcar—the 1900 vintage car No. 812 on Glasgow's No. 3 route which carried him to school. Now, he spends most of his free week-ends painting and restoring the tram which, retired from active service, is in the Tramway Museum Society's collection at Crich, in Derbyshire. For Ian, now working with a firm of consultant engineers in Glasgow, this means a week-end round trip of nearly 600 miles, but he intends to carry on until the tram's orange and maroon livery is as good as new and the vehicle is running again, on a mile of track being laid by the society in a disused quarry.

At Crich, the society has trams from all over Britain and hopes to add to the collection. It is a unique museum and when completed will be fully operational. All labour is voluntary. Visitors will be able to pay for rides to help with the upkeep.

Our pictures show: (Above) Ex-Manchester Corporation tram No. 765, which was being rebuilt when the photograph was taken; (Below) Track laying by members of the society; (Top right) Mr. J. W. Fowler, founder of the Light Railway Transport League, at the controls of a former Southampton tramcar with Mr. G. B. Claydon, Secretary of the Tramway Museum Society, on the top deck, and (Bottom right) Ian Stewart at work on ex-Glasgow tram No. 812.

DINKY TOYS NEWS

A New Daimler To Welcome A New Year

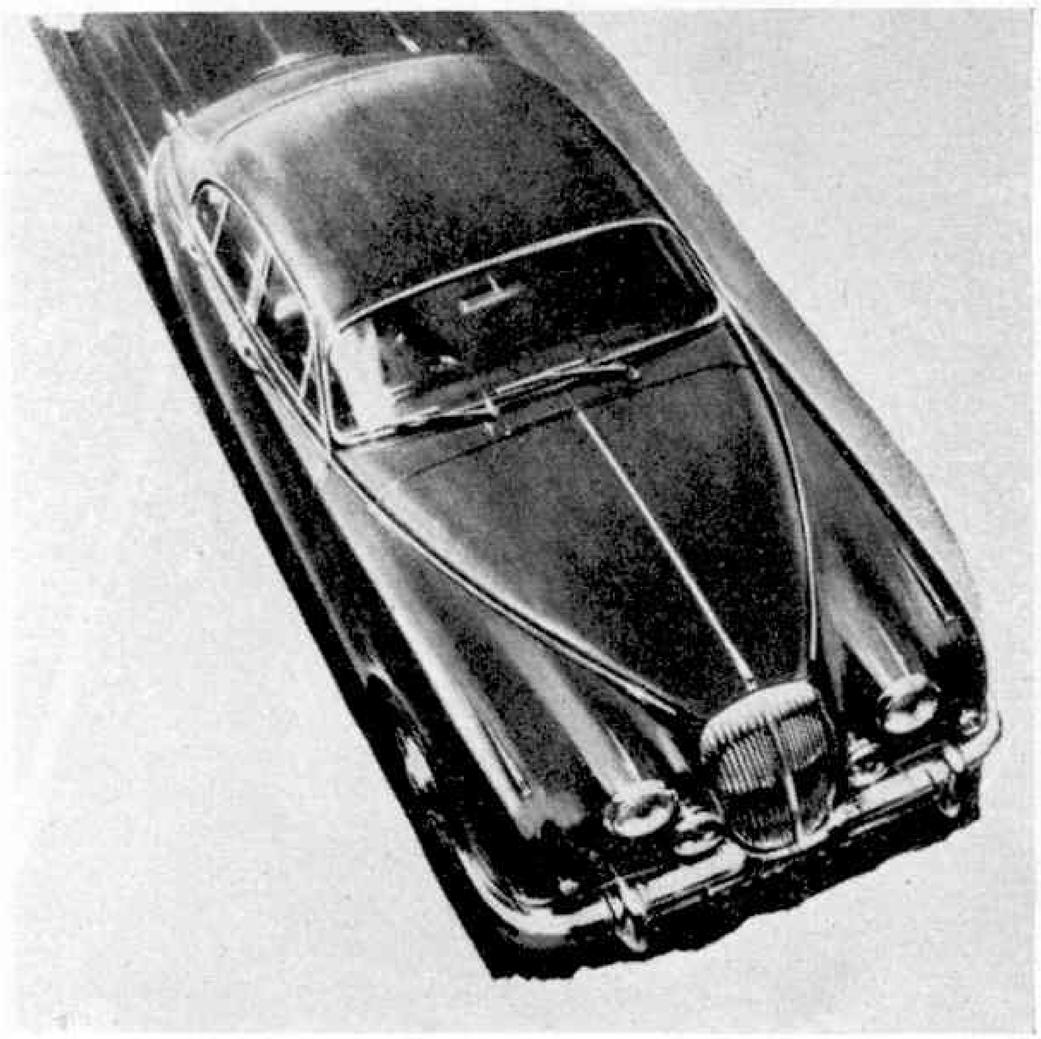


ALTHOUGH I have some very interesting news to give collectors this month, I want to begin by wishing all my readers a happy and properous New Year. I hope you did not eat too much turkey and Christmas pudding over the festive period, and that you received plenty of Dinky Toys as presents. I am sure many collections have, in the last week or two, been enlarged by the introduction of new and shining models which will enhance the general appeal and provide additional enjoyment.

There is much entertainment to be gathered on these long winter evenings from building indoor layouts, and variety

By
THE TOYMAN

in models is something which matters very much in giving your schemes a truly realistic flavour. That is why, I think, you will welcome the two further models announced in our series this month and illustrated here and in our advertisement pages.



The strikingly elegant lines of the new Daimler V8 Saloon are illustrated in the picture on the left. Above: The Dinky Toys model of the Daimler is seen rounding a corner. Buildings in the background are built with Bayko.

First of these, which is No. 146 in the Dinky Toys list, is a miniature of the last word in Daimlers. You may remember that some time ago the Daimler and Jaguar concerns amalgamated. One of the first results of that important link-up was the production of the 2½ litre Daimler V8 Saloon—the prototype on which our model is fashioned.

The actual vehicle, manufactured by the Daimler Car Co. Ltd., of Coventry, is based, so far as the styling of the body-work is concerned, on the Jaguar 2.4 Mark 2, but it has been "Daimlerised" and presents a most exciting profile. In particular it has the distinctive fluted radiator by which one so easily recognises the Daimler and it has also been fitted with new front seats of the split-bench type which can easily be converted to carry three abreast.

Power for this elegant car is supplied by an o.h.v. V8 engine of 2,548 c.c. which develops 140 b.h.p. and which provides the car with a maximum speed of 110 m.p.h. It can cruise over long distances at between 80 and 90 miles an hour. Overall dimensions are: Wheelbase 8 feet 11⅜ inches; length 15 feet 0¾ inches; width 5 feet 6¾ inches; height 4 feet 9½ inches; front track 4 feet 7 inches; rear track 4 feet 5⅜ inches. A further interesting point is that the vehicle is fitted with Borg-Warner automatic transmission. Power-assisted steering is an extra.

Now to pass on to the Dinky Toys miniature. This is, of course, fitted with all those exciting features which are now so much a part of Dinky Toys—windows, seats, steering wheel, four-wheel suspension and Prestomatic steering, which allows you to corner by exerting finger tip pressure on the front of the bonnet.

The basically sleek and speedy lines of the model are enhanced by its polychromatic finish in a striking shade of blue. It is, indeed, a car which adds a polished touch to a layout, and is the first of many exciting new cars planned for the Dinky Toys range in the months ahead.

Second model to make its bow in 1963 is one that is both ideal for the collector and for the youngster who regards our models —made to stand up to robust handling—simply as toys. It is the Continental Touring Coach (Dinky Supertoys No. 953) and can be seen in the illustration on the opposite page.

It has, in fact, a predecessor in the Dinky Toys range since it is based on the very popular Wayne School Bus (No. 949) which has proved to be a world-wide favourite in the months that have gone by since its introduction.

The new version of this bus, with its very appealing colour finish—pale blue bodywork and white roof—is, like its predecessor, complete with windows, seats

and steering wheel. Outlined in red along the roof on either side of the vehicle are the words "Dinky Continental Tours." Again we have a model which puts that variety—which is always known to be the "spice of life"—into miniature traffic schemes. The colouring, so very pleasing in its own right, is given added appeal by the introduction of specially-tinted windows. In these days a great many coach manufacturers are producing vehicles with tinted windows or roof lights, some orange, some yellow and some simply darkened in the way sun glasses are, the reason being to reduce glare. You possibly have experienced the eye strain that can set in if you have travelled for long periods in a coach, or even a car, which has the ordinary clear windows. The addition of a slight tint to coach windows, such as those fitted to the Continental Touring Coach, means that the occupants are not dazzled by the sun, yet the colours of the countryside are not unduly affected.

I am sure readers will be interested to hear about an automatic car park which has been marketed by Communication Systems Ltd., and is known as "Car-Haven." This automatic car park has been introduced to solve many of the parking problems with which this country is now beset. With a CarHaven installation, the makers say, cars can be handled smoothly, safely, efficiently and economically in many parking areas. In simple terms, it provides for the collection, without the intervention of any attendant, of tolls paid by car drivers for off-street parking.

When CarHaven was brought out the company concerned asked us for the loan of Dinky Toys to illustrate a scale model of the park, and you see that model illustrated on this page, with the Dinky Toys making up a very fine parking scene. This picture was used as a front cover of

(*Continued on page 46*)

Being a Continental Touring Coach, Dinky Toys new model No. 953 (above) is fitted with left-hand drive. You see it here as you would see an actual touring coach whisking along a main road.

A wide selection of Dinky Toys was used to create the picture on the right in which you see a scale model of the new automatic CarHaven described in this month's notes. This picture shows clearly how Dinky Toys can be used to create very realistic scenes in the modern vein.

Another Model In The M.M. Series For The Enthusiast

Pick Of The "Pops"

BY "SPANNER"

A MECCANO LOOM

THE Loom described here is one of the oldest and most popular Meccano models, and if carefully constructed and properly adjusted it is capable of weaving excellent fabric about 2½" in width.

Framework

Four 18½" Angle Girders 1 and 6 are secured in a vertical position to the base Girders 2. The 9½" Angle Girder 4 is supported by four 9½" Angle Girders 7, which are bolted to the Angle Girders 2. The remainder of the framework may be successfully completed by studying carefully the illustrations.

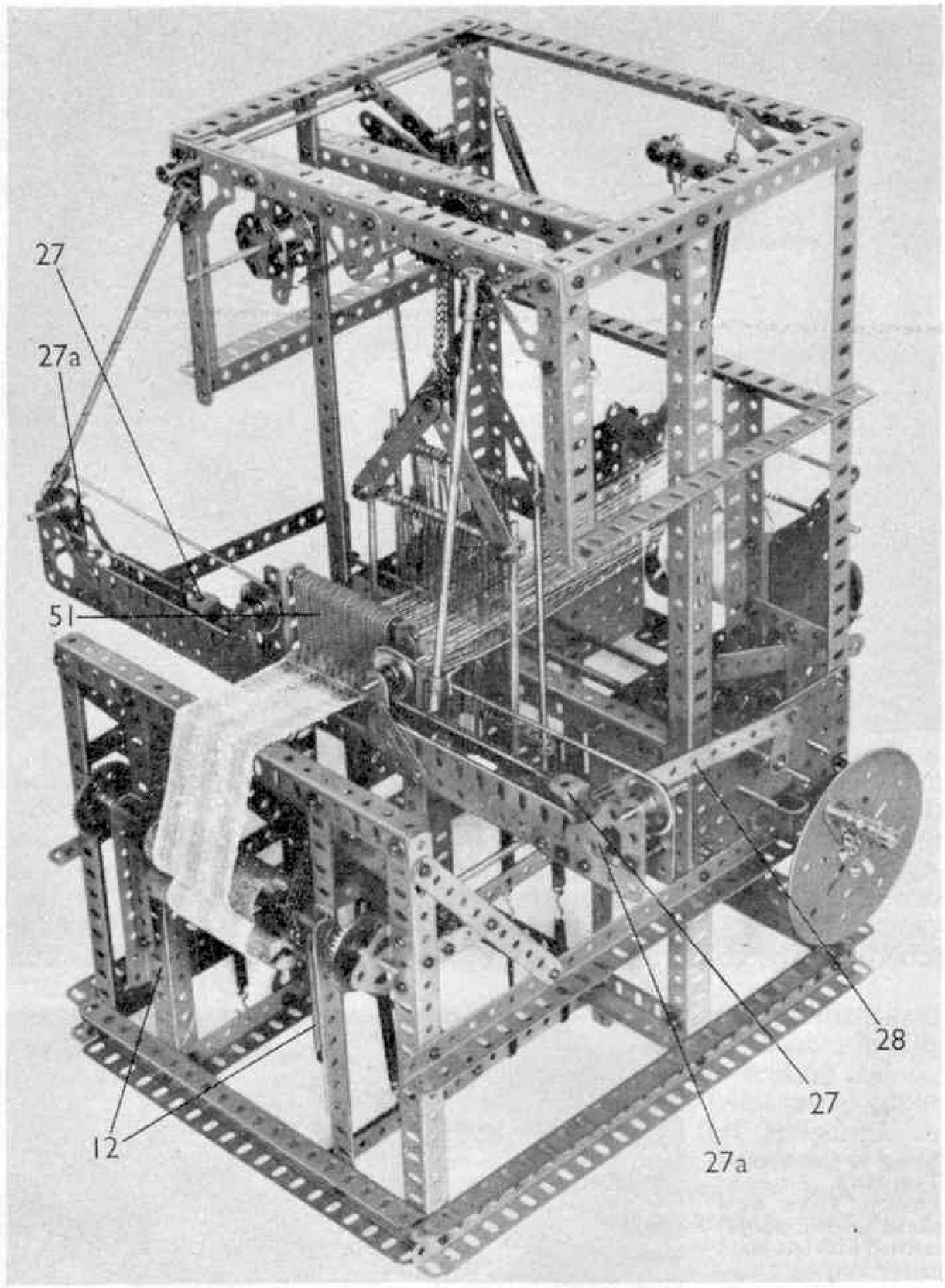


Fig. 1. The Meccano Loom in its completed state seen from the front side, with the neatly woven fabric emerging on the left.

The next step is the assembling of the gearing, which is shown in the close-up illustration, Fig. 4. This gearing is duplicated, with the exception of the operating handle and axle, at the other side of the model.

The operating handle, which consists of a 4" Circular Plate with a 1½" Rod attached to its face by a Crank, is secured to a 5" Rod 55 carrying a ¾" Pinion that meshes with a 50-tooth Gear Wheel 54 on an 11½" Rod. A ¾" Pinion on this Rod engages with two 50-tooth Gear Wheels 62 and 63 fixed on separate Rods that run from side to side of the Loom. The first Rod has secured to it a cam 52 and the second Rod carries a Worm 56. Three Double Brackets are bolted next to each other between two Bush Wheels to make the cams. A cam is fixed by duplicate set-screws at each side of the Loom on the 11½" Rod 32, and it is set with the centre Double Bracket of each cam diagonally opposite each other.

The Picking Motion

The "picking motion" is the term given to the mechanism by means of which the Shuttle is thrown from side to side of the slay. Two 5½" Strips 23 that ride on the cams are mounted on a ½" Bolt fastened to the 5½" × 2½" Flat Plate, spaced away by a Collar and locked by a nut on each side of the Plate, and they slide between guides formed from vertically disposed 3½" Strips spaced apart by two Washers. The free end of each Strip is connected by an End Bearing and a lock-nutted bolt to a 10" Rod 50 (an 11½" Rod cut down), the upper end attached in a similar manner to a built-up crank 1½" long that consists of two Cranks bolted together in such a manner that their bosses are at opposite ends. The composite crank is secured by double grub-screws to an 8½" Rod 22 in the upper part of the Loom, which also carries a Crank 36. A Spring and a Driving Band attached to the Crank serves the purpose of maintaining the Strip 23 in intimate contact with the cam.

A Coupling is secured on the end of each Rod 22, a ¾" Bolt being passed through its transverse bore and inserted in the tapped bore of a Coupling on the upper extremity of an 8" Rod forming the "picking stick". The bottom end of this Rod is later to be attached to a length of Spring Cord 25.

Take-up Motion

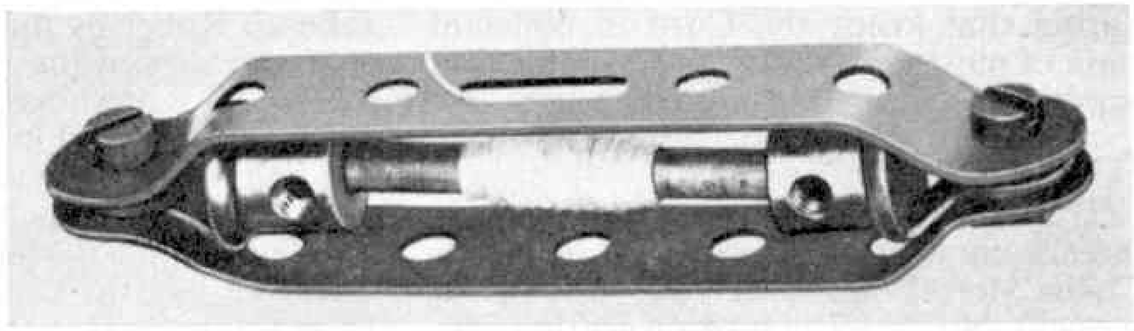
A ½" Pinion on an 8" Rod 53 engages with the Worm 56. This Rod is duplicated on the other side of the model, and the ends of both Rods terminate in ½" Bevel Wheels that are in mesh with 1½" Bevel Wheels on the Rod of the sand roller which is made by gluing rough sand paper to a Wood Roller. The lower Wood Roller is rotated by frictional contact with the sand roller, and both rollers are kept together by means of a spring tension device. The lower ends of two Springs are hooked to the frame of the model, and their upper ends are fitted with short lengths of Sprocket Chain which, after passing over 1" Sprocket Wheels above the rollers, are attached to the lower roller spindle by Wire Hooks. The spindle of the lower roller slides in a pair of guides 12 which are arranged so that the spindle is free to move vertically by spacing the 3" Strips away from the Angle Girders with four Washers on each ⅜" Bolt.

The Heald Frames

The Healds serve to lift and depress alternate threads of the warp so that the shuttle may be passed between the threads.

The warp threads are those that run longitudinally from back to front of the loom. The thread at right-angles to these is the "weft". Each heald frame consists of two $6\frac{1}{2}''$ Rods and two $3\frac{1}{2}''$ Rods held together by four Couplings, with 30 Healds placed on the $3\frac{1}{2}''$ Rods. Two $3\frac{1}{2}''$ Strips are attached to the upper Couplings and joined at the apex by a Fishplate. Springs 59 are fastened to the lower Couplings, and attached to the Angle Girders 20 by Wire Hooks and 6" Driving Bands. The Fishplates 60 are bolted to lengths of Sprocket Chain 42 and 44 having 38 and 44 links respectively. These Chains pass over 1" Sprocket Wheels 41 and 43, and are attached finally by Wire Hooks to $2\frac{1}{2}''$ Strips 45 and 47 that are fixed by 1" Screwed Rods and nuts to two Bush Wheels secured rigidly to the Rod 49. The Rod carries a Crank, extended by a $2\frac{1}{2}''$ Strip, which is connected by a 9" Rod 39 to a Crank 31 on the end of the camshaft. The attachment of the Rod 39 to the lower Crank 31 is effected by means of a Swivel Bearing 30, and to the upper Crank by an End Bearing 48.

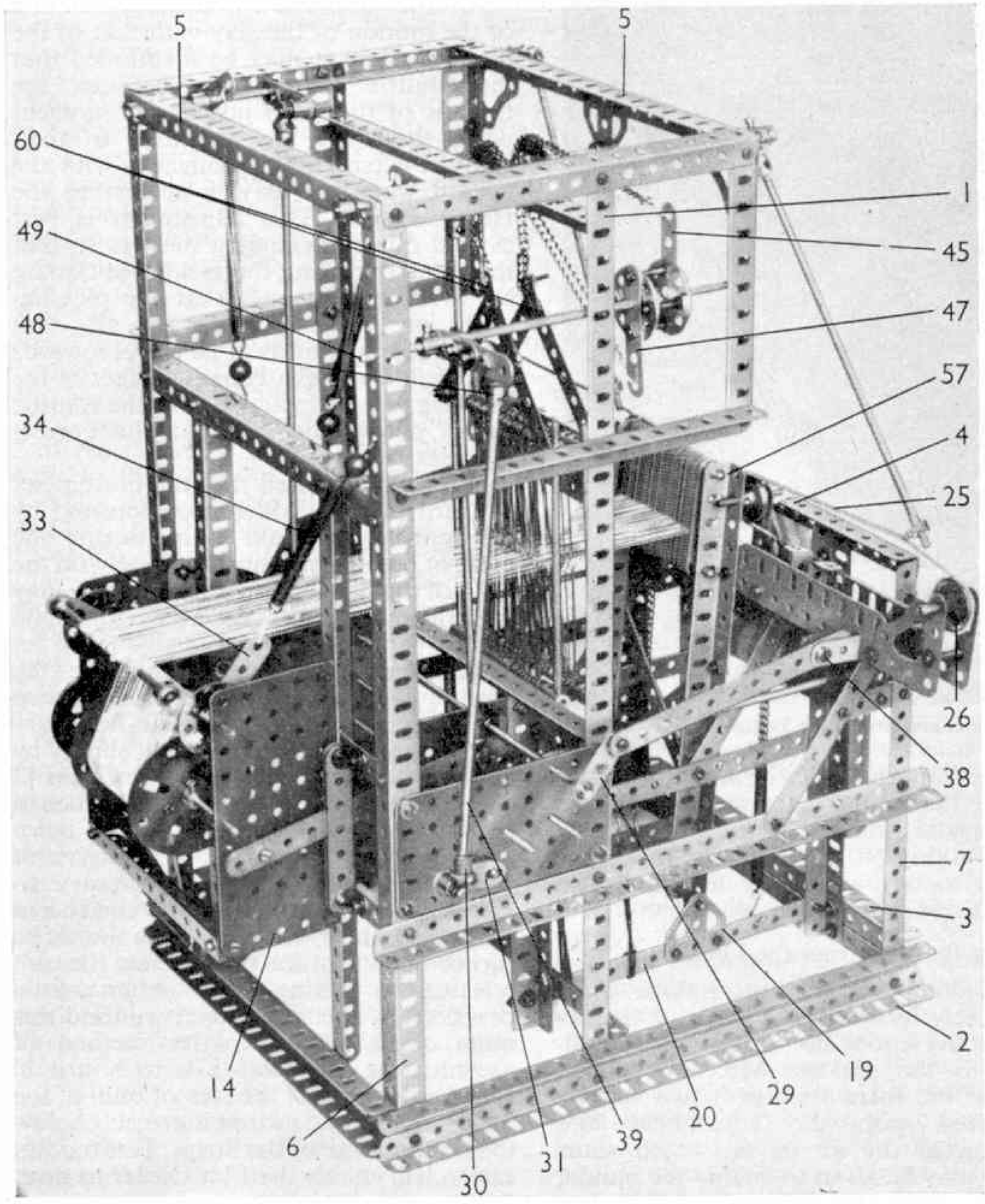
Fig. 2. The built-up shuttle and bobbin.



Construction of the Slay

With two $12\frac{1}{2}''$ Angle Girders make a channel section. These are held together by four Double Brackets using the same bolts that fasten the $5\frac{1}{2}''$ Flat Girders to the Angle Girders. Corner Gussets at each end serve as bearings for the Rods of the 1" Pulleys and Collars 26. The Reed 51 consists of 31 $2\frac{1}{2}''$ Strips mounted on two Rods, each Strip being spaced apart from the next with one Washer. The Reed is attached to the slay by passing the ends of the Rods carrying the $2\frac{1}{2}''$ Strips through the flanges of the $9\frac{1}{2}''$ Angle Girders 57. A length of Spring Cord 25 passes round each pair of 1" Pulleys and its ends are fixed to the lugs of a Double Bent Strip 27, which slides freely on the bed of the slay. A $1'' \times \frac{1}{2}''$ Angle Bracket 27a is bolted at each end to the Corner Gussets. The lower ends of the picking sticks will eventually be attached to the Spring Cord and in this manner the Double Bent Strips are made to flick backward and forward, so that when the shuttle is placed at one end of the slay, one of the Double Bent Strips will engage with the shuttle and throw it across the slay. The other picking stick and Double Bent Strip will then return it. The slay is mounted in place in the loom by passing a Rod through the top holes of the Flat Trunnions 19 and through the bottom holes of the Angle Girders 57. The slay is rocked about its pivot by means of two Cranks 29 secured on the ends of the Rod carrying the $\frac{3}{4}''$ Pinions that mesh with the 50-tooth Gear Wheels 63. Connection between the Cranks and the slay is formed by means of $5\frac{1}{2}''$ Strips 28, which are attached to the Single Bent Strips 38 bolted to the back of the slay.

Fig. 3. The Loom seen from the rear and showing the Beam and tensioning device.



Shuttle

The shuttle is shown separately in Fig. 2. To assemble it bend two $3\frac{1}{2}''$ Strips at each end as shown. An End Bearing with a Washer placed between its lugs is bolted at each end of the Strips. A $1\frac{1}{2}''$ Rod runs *freely* in the End Bearings, the Grub Screws being screwed down to retain it in position, but not to grip the Rod itself.

Warp Tensioning Mechanism

When the heald frames descend after forming the "shed", the threads of the warp naturally fall slack, unless special mechanism is provided to remedy the matter. Slacking of the warp would, of course, prevent satisfactory work being turned out by the model, and in order to compensate for any sag of the threads, a particularly ingenious device known as a warp tensioner is incorporated in the model. This mechanism and its arrangement may be seen in the rear view of the model Fig. 3, and a study of this illustration in conjunction with the following description will make the matter quite clear. It consists of a $6\frac{1}{2}''$ Rod journalled in the Flat Plates 14 and carrying two Bush Wheels, to one of which a $2\frac{1}{2}''$ Strip 33 is bolted. Two Cranks are bolted to the Bush Wheels as indicated in Fig. 4, and a Rod is secured in the bosses of the Cranks. The warp threads from the "beam" (two Face Plates bolted to the lugs of four $2\frac{1}{2}'' \times \frac{1}{2}''$ Double Angle Strips) are first passed over the fixed Rod, then round the movable Rod, to the healds. The necessary tension is supplied by means of a Spring 34 attached to the Strip 33 as shown.

The beam is restrained from free rotation by a band brake consisting of a 2" Pulley secured to the beam axle, and round which passes a piece of Cord. One end of the Cord is attached to the frame of the model, and the other is tied to a

Spring that keeps the Cord in constant state of tension round the Pulley and thus supplies the required retarding effect.

Preparing to Weave

The best material for use as the warp threads in the Meccano Loom is Coats Chain Mercer—Crochet No. 40, and for the weft, No. 60. The take-up gearing may be altered to two 1″ Bevel Wheels instead of the ½″ and 1½″ Bevel Wheels and then the weft No. 40 can be used.

Before threading the healds, etc., it is of the utmost importance to see that the various movements of the model take place in their correct order. First, the Heald frames should both be arranged so that the eyes of both frames coincide when the slay is at the front centre. Then, with one of the Heald frames raised and the other lowered to their greatest extent, the slay will be as close as possible to the front Heald frame. At the same time the picking motion must throw the Shuttle across the slay, and this cycle of operations must take place with unfailing regularity.

take-up Roller by means of a Rod placed in the groove of the Roller.

The 1½″ Rod should be taken out of the shuttle and placed in a Coupling fixed on the end of a Motor shaft. It is not advisable to put too much thread on the Rod at a time, and it should only be wound over the inch in the centre (see Fig. 2). Replace the Rod in the shuttle and thread the "weft" through the centre hole of one of the 3½″ Strips. The weft should come off the Rod easily.

When the operating handle is turned, one of the Heald Frames rises and the other falls simultaneously, thus "shedding" the warp. The slay moves up to the Heald frames, and as it pauses before commencing its return journey the Shuttle is thrown across the slay between the parted warp threads, leaving in its wake a trail of weft thread. On the return of the slay the reed drives before it loose thread left by the shuttle, so forming what is termed the "first pick" of the weft. By continuing to turn the handle the process is repeated, but this time the Shuttle is

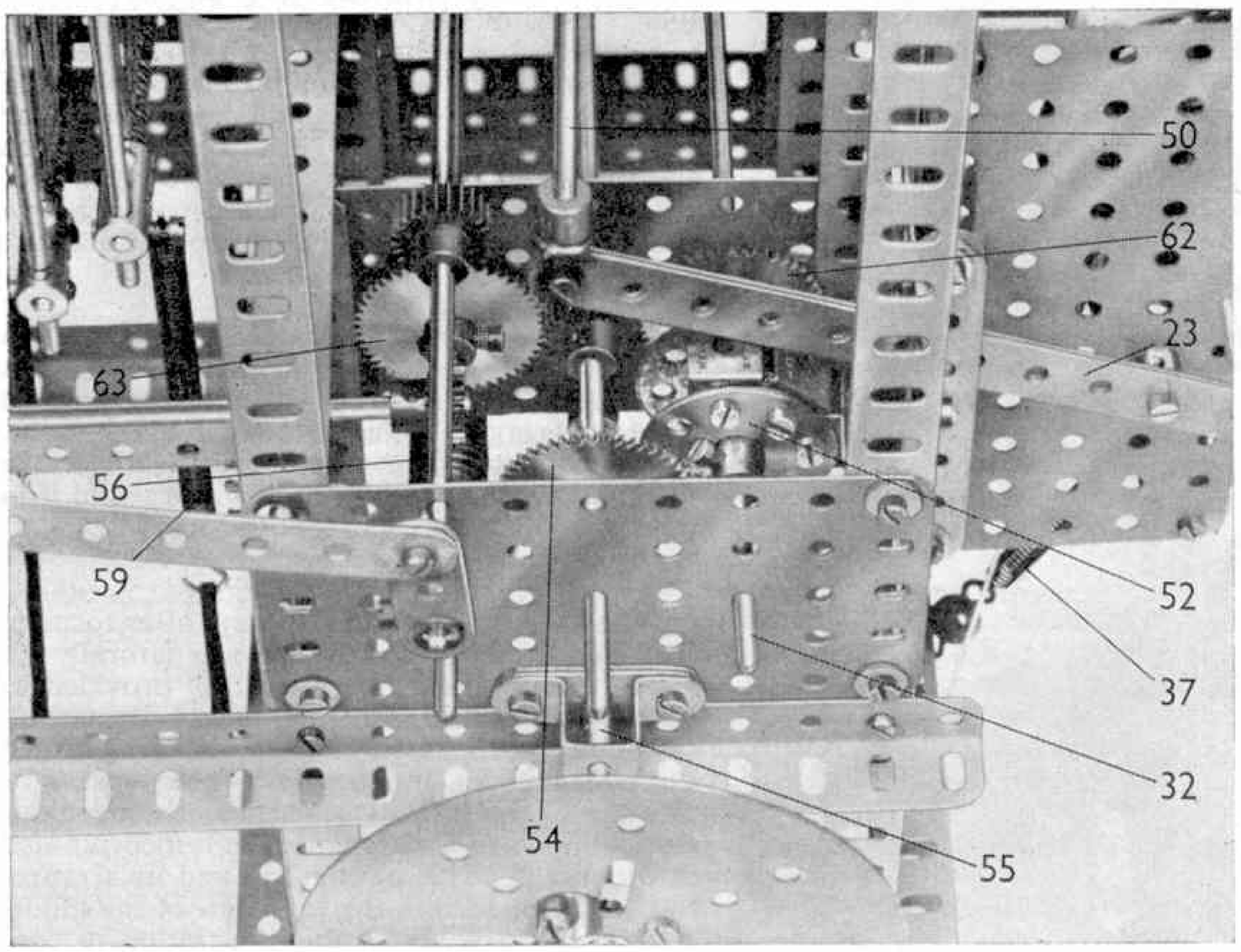


Fig. 4. The gearing and "picking stick" cams at one side of the Loom.

Threading the Healds

Starting at the right-hand side, a single warp thread is passed through each "eye" of the Healds, the threads passing through the "eyes" of the two Heald frames alternately. Care should be taken to see that none of the threads cross. Two threads are passed through each division of the reed, and attached to the take-up rollers. A reed hook will greatly help in threading up the warp.

Sufficient warp thread should be unwound from the beam to allow the Healds to be easily threaded, and the ends of the threads are then clamped to the lower

thrown from the opposite end of the slay. The reed then presses the second pick into place against the first.

The taking-off rollers in the meantime revolve slowly and draw in the woven fabric as weaving proceeds.

Getting the Best from the Loom

Providing that the instructions given are closely followed, the actual construction of the Loom should offer little difficulty to the average Meccano model-builder; but there are one or two matters connected with the adjustment and working of the model on which some advice may be given to enable the builder to turn out really good material that may be put to some useful purpose.

First of all, it should be understood that adjustments to the finished model will be necessary to ensure that the different movements are timed correctly. For example, it is quite probable that in a newly-completed model some difficulty will be experienced in getting the Shuttle to work properly and regularly, and this, of course, is one of the most important movements of the whole machine. Careful attention, therefore, should be paid to this matter.

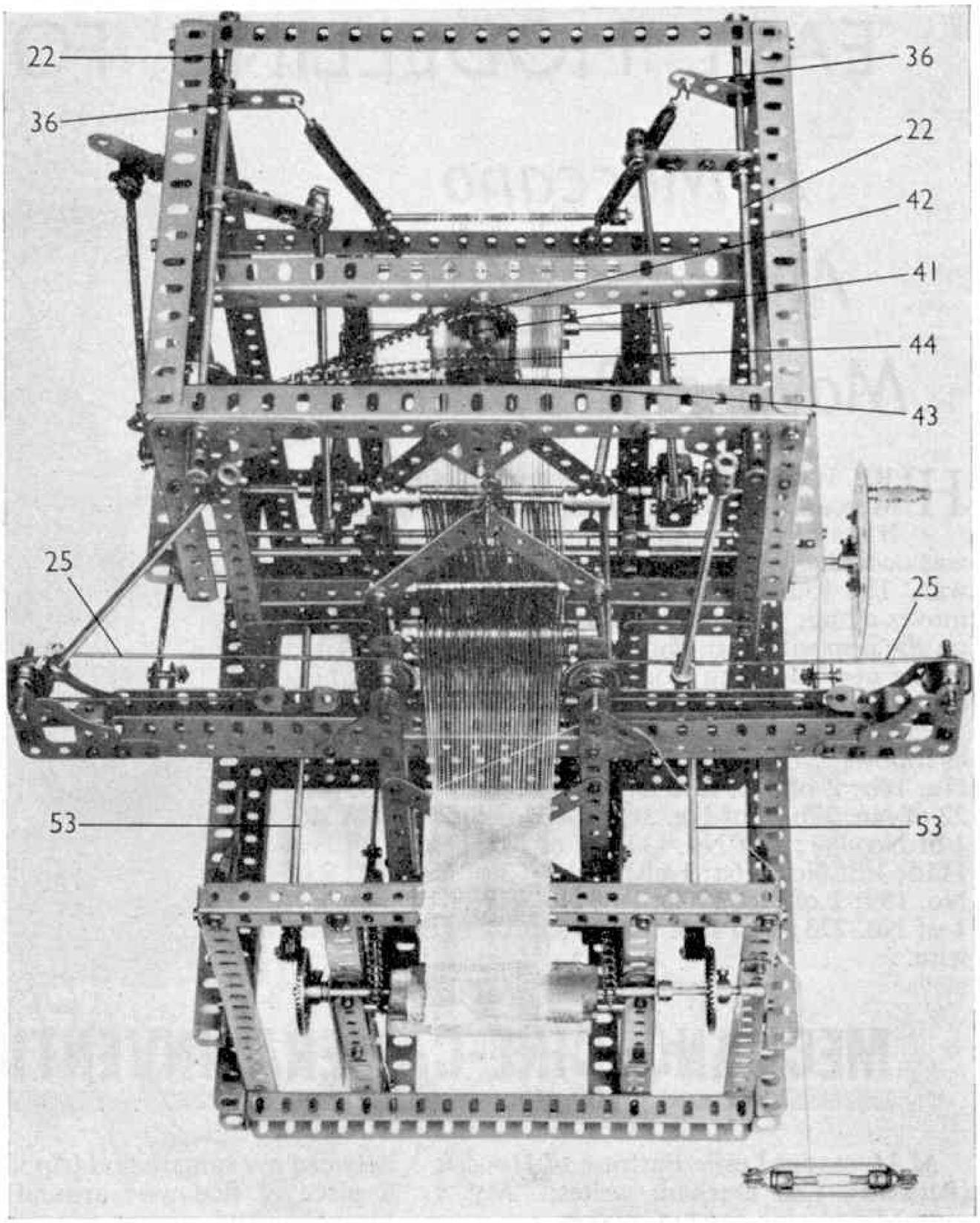
I have already mentioned that any trouble arising through the Shuttle sticking in the slay may usually be overcome by the simple expedient of lining the floor of the slay with a strip of cardboard, or better still a strip of tin. This will provide a smooth even surface on which the Shuttle may slide easily to and fro. The next operation is to carefully adjust the springs that control the picking motion, taking care to ensure that the tension of both springs is equal. Several experiments may be necessary before the springs are in correct adjustment, but any trouble taken at this point will be amply repaid by the better quality of the woven cloth.

Another important point is the timing of the motion of the slay with that of the Shuttle. Here it may be mentioned that the Shuttle must shoot between the threads of the warp just at the moment when the latter are separated to their greatest extent, which coincides with the instant when the slay is nearest to the Heald Frame. This adjustment is best carried out by arranging matters so that the cams operating the picking-sticks are set in such a manner that the picking-sticks are released when the slay has completed two-thirds of its travel towards the Heald Frames. Thus the effect of the time-lag is counteracted, and the Shuttle passes across the warp at the correct moment.

It should be noted that the bottom set of warp threads, which are depressed by the appropriate Heald Frame during one cycle of operations, must lie closely on the floor of the slay, otherwise the Shuttle may foul them in its passage across the slay. The upper set of threads also should receive attention in order to ensure that the Shuttle has a clear path between the two sets of threads. The adjustments necessary to effect this may be carried out simply by varying the lengths of Sprocket Chain 42 and 44 that connect the Heald Frames to the arms 47 and 45.

In order to obtain the sudden jerk of the picking-sticks that is necessary to throw the Shuttle smartly from end to end of the slay, the operating handle should be turned quickly at the point where the cam releases the picking-sticks. After a little practice the amateur weaver will find this quite easy. An alternative method of accentuating this motion is to bolt a 2″ Flat Girder against the face of each of the Strips 23 (Fig. 4), so that it projects below the bottom edge of the Strip. This modification will enable the Flat Girder to drop

Fig. 5. Looking down on the Loom. In this view the slay bed can be seen.



with extreme suddenness off the receding face of the cam, and will thus speed up the motion to a greater extent than would be possible by the Strip merely riding on the cam. In order to cause the Flat Girder to follow closely the contour of the cam, the Spring 37 may be duplicated.

It will be realised that considerable strain is placed upon some of the Gears and Rods of the mechanism, and in order to prevent the Gears slipping on their shafts, all set-screws must be secured very tightly. If any parts are still found to slip on their Rods, especially in connection with the picking motion mechanism, the set-screws should be duplicated, thereby doubling their powers of resistance.

Where considerable trouble is experienced from this cause, it is a good plan to file a small flat in the Axle Rods immediately beneath the set-screws, thus providing a better gripping surface.

Threading of the Heald Frames

There are one or two matters in connection with the threading of the warp threads through the Heald Frames on which some advice may be useful.

Before the warp threads are passed through the Healds, they must first be wound on to the built-up unit forming the beam. This can best be done on a Beaming Frame and I shall endeavour to include a description of a suitable Beaming Frame in the *M.M.* in the near future.

Parts required to build Loom 16a: 2 of No. 1b; 12 of No. 2; 10 of No. 3; 2 of No. 4; 42 of No. 5; 4 of No. 6; 2 of No. 6a; 4 of No. 7a; 10 of No. 8; 17 of No. 8a; 8 of No. 8b; 5 of No. 9; 2 of No. 9a; 2 of No. 10; 10 of No. 11; 6 of No. 12; 2 of No. 12b; 4 of No. 13; 6 of No. 13a; 6 of No. 14; 1 of No. 14a; 4 of No. 15; 6 of No. 16; 1 of No. 16a; 6 of No. 18b; 1 of No. 20a; 4 of No. 22; 9 of No. 24; 5 of No. 25; 2 of No. 26; 5 of No. 27; 2 of No. 30a; 2 of No. 30c; 2 of No. 32; 2 of No. 35; 260 of No. 37a; 218 of No. 37b; 154 of No. 38; 10 of No. 43; 3 of No. 45; 2 of No. 46; 4 of No. 48a; 4 of No. 53a; 4 of No. 57c; 14 of No. 57d; 1 of No. 58; 36 of No. 59; 15 of No. 62; 13 of No. 63; 2 of No. 70; 6 of No. 82; 1 of No. 94; 4 of No. 96; 62 of No. 101; 2 of No. 102; 4 of No. 103c; 2 of No. 106; 6 of No. 108; 2 of No. 109; 2 of No. 111; 2 of No. 111a; 12 of No. 111c; 1 of No. 126; 3 of No. 126a; 2 of No. 133; 1 of No. 146a; 6 of No. 147b; 8 of No. 166; 6 of No. 186a; 2 Balls Coats No. 40; 1 Ball Coats No. 60; 5 of No. 13 cut to 2 at 10″, 1 at 9″ and 2 at 8½″; 26 B.A. Nuts and Bolts.

TALYLLYN CALENDAR

The Talyllyn Railway Company have issued their annual calendar which, as usual, shows scenes from this popular little line. The illustrations will bring back happy memories to *M.M.* readers who have had the pleasure of a trip on the railway, and include some excellent "shots" taken along the route as well as interesting pictures showing maintenance work being carried out at the Pendre Yard. There is a fine close-up picture of Locomotive No. 1 *Talyllyn*.

The 1963 calendar costs 3/–, and is obtainable from Mr. R. K. Cope, "Bryn-glas", Beckman Road, Pedmore, Stourbridge, Worcs. Although the company have printed several hundred more calendars this time than last the demand is always keen and application for the calendar should be made as soon as possible.

BRITISH BUSES FOR HOLLAND AND AUSTRALIA

Orders from Western Australia and Holland have been placed with Leyland Motors Ltd., for 54 of their Worldmaster export buses, valued at £190,000.

Perth's Metropolitan Passenger Transport Trust has placed a contract for 30 Worldmasters, generally similar to those previously supplied to the undertaking. They will be powered by 125 h.p. underfloor diesel engines and equipped with four-speed Pneumo-Cyclic "no-clutch" gear-boxes and powerful air brakes.

A non-standard feature of the Worldmasters for the Trust will be their engine cooling systems. All the aluminium components normally used in the system will be replaced by cast iron units, because of the unusually heavy corrosive action on aluminium by the water in Perth.

The order from Holland has been placed with Leyland's associate company, Leyland Holland N.V., by Gelderse Tramwegen, who are buying Leylands for the first time. They will use them as continental touring coaches and as inter-city service buses. Their 24 Worldmasters will have five-speed Pneumo-Cyclic gear-boxes and will be powered by engines similar to those in the vehicles going to Perth.

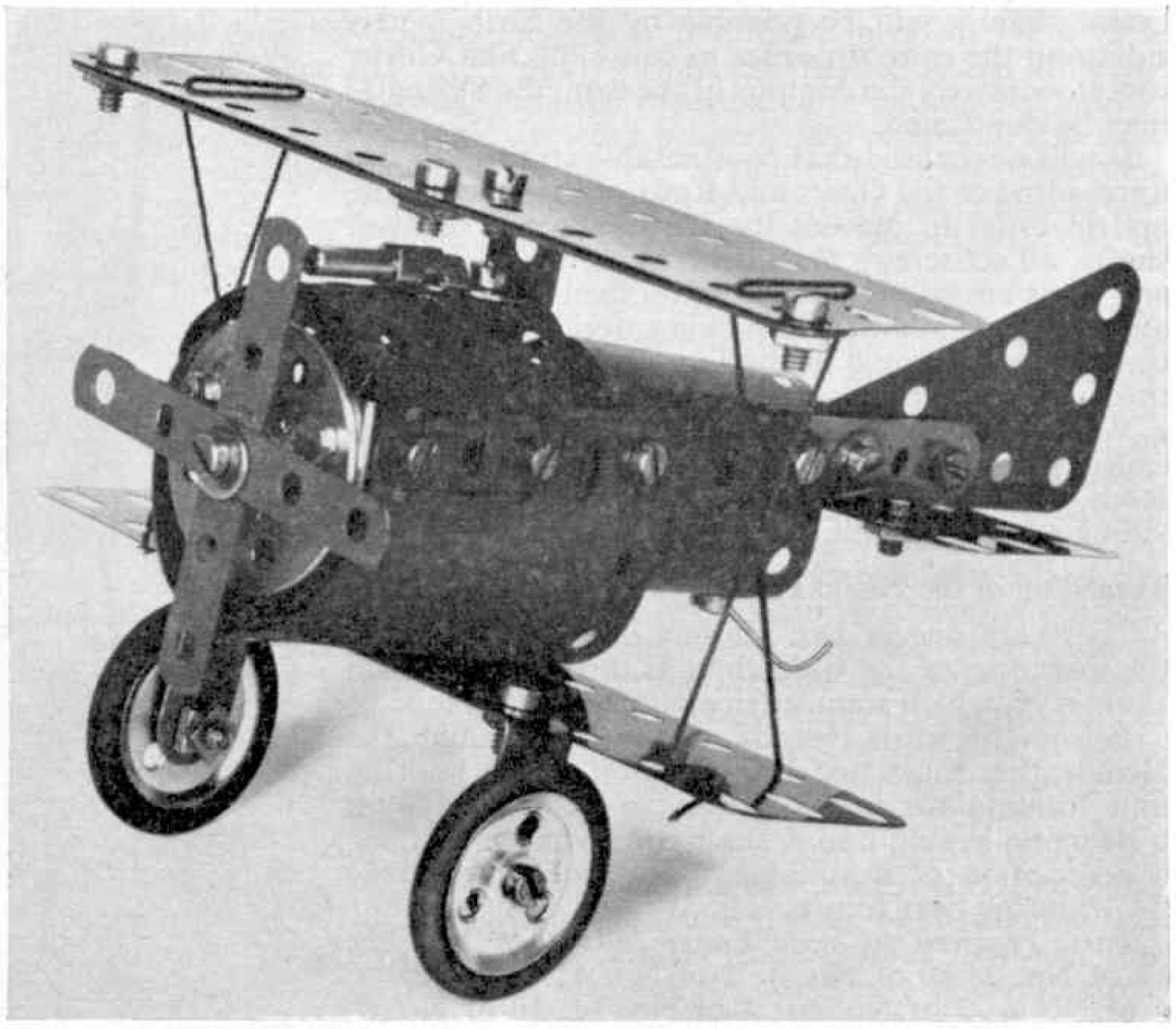
PINE HARVESTING: A NEW INDUSTRY

At Mango Creek, in the midst of the mahogany forests of British Honduras, a new industry of pine harvesting is growing up. From the stumps and roots of pine trees, cut down many years ago, is to be extracted a highly-concentrated and valuable resin that is used in the manufacture of insecticides and disinfectants.

The owners of these vast forests, Belize Estates and Produce Co. Ltd., operate a fleet of A.E.C. "Mandator" tractors—the total will be brought to twelve as the result of a recently-placed order—which are engaged on hauling trailer loads of stumps over forest tracks to a stockpile some miles away. From this stockpile the mill and factory at present being built will soon draw their supplies for crushing and processing. The entire output of extracted pine essence will be sent to America to supply users of essential oils.

EASY MODELLING FOR THE JUNIORS

A Meccano Aircraft With Moving Propeller



HERE is an interesting little model for younger Meccano builders to tackle, writes "Spanner."

It is a biplane based on the type of machine that was occupied with scout duties during the first world war. The four-bladed airscrew turns as the aircraft moves along. Instructions for making this model are on the opposite page and are based on the style used in the new Meccano Books of Instructions in which exploded drawings take the place of text.

Parts required to build this Meccano aeroplane are as follows: 3 of No. 5; 1 of No. 11a; 4 of No. 12; 1 of No. 18b; 2 of No. 22a; 1 of No. 24; 29 of No. 37a; 22 of No. 37b; 3 of No. 38; 1 of No. 40; 1 of No. 46; 1 of No. 111; 1 of No. 111a; 2 of No. 111c; 1 of No. 111d; 1 of No. 116a; 1 of No. 186; 3 of No. 188; 2 of No. 189; 1 of No. 190a; 1 of No. 212; 1 of No. 221; 1 of No. 223; 2 of No. 235; 1 short length of strong wire.

MECCANO CINE-CAMERA INVENTION

M.M. reader Leslie Battram of Horden (Peterlee), Co. Durham writes, "My 8 mm Miller cine-camera makes no provision for a delayed action or cable release, as a result of which my family movie sequences rarely show my wife and myself with the two children unless, of course, we get someone else to operate the camera. But getting someone else seems to spoil the family atmosphere and naturalness. Buying a camera to do the job was out of the question, and even ready-made gadgets were too expensive, so it seemed we would just have to make do with what we had.

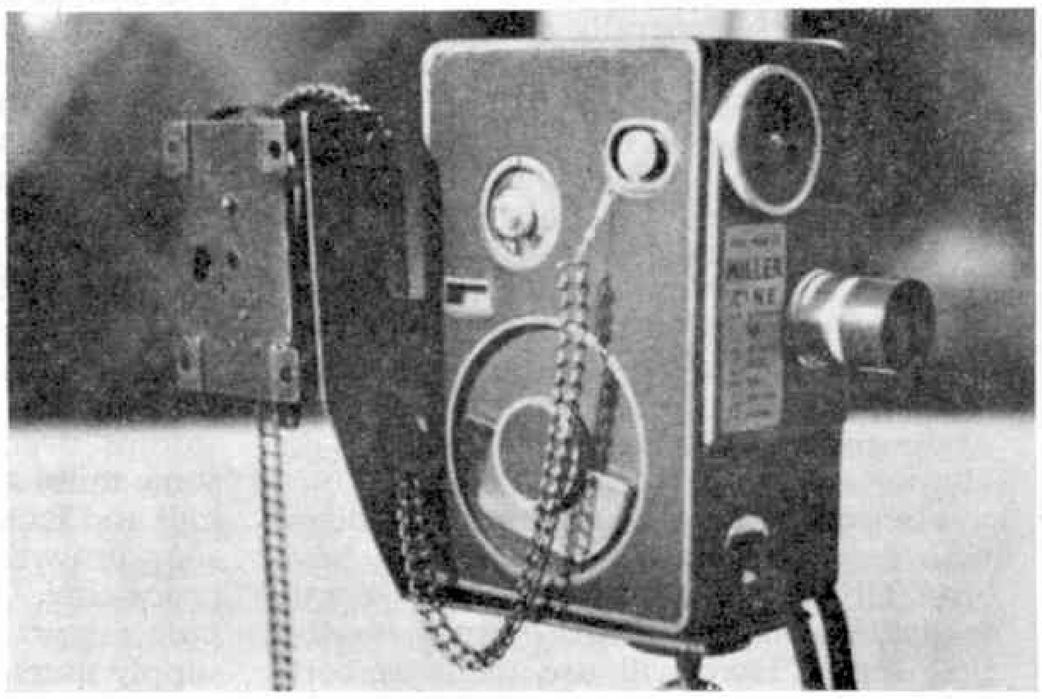
"One evening, as I sat watching my youngest son John hauling a Meccano model across the floor, using a small Meccano Motor for a winch, I had an idea for an inexpensive delayed action device.

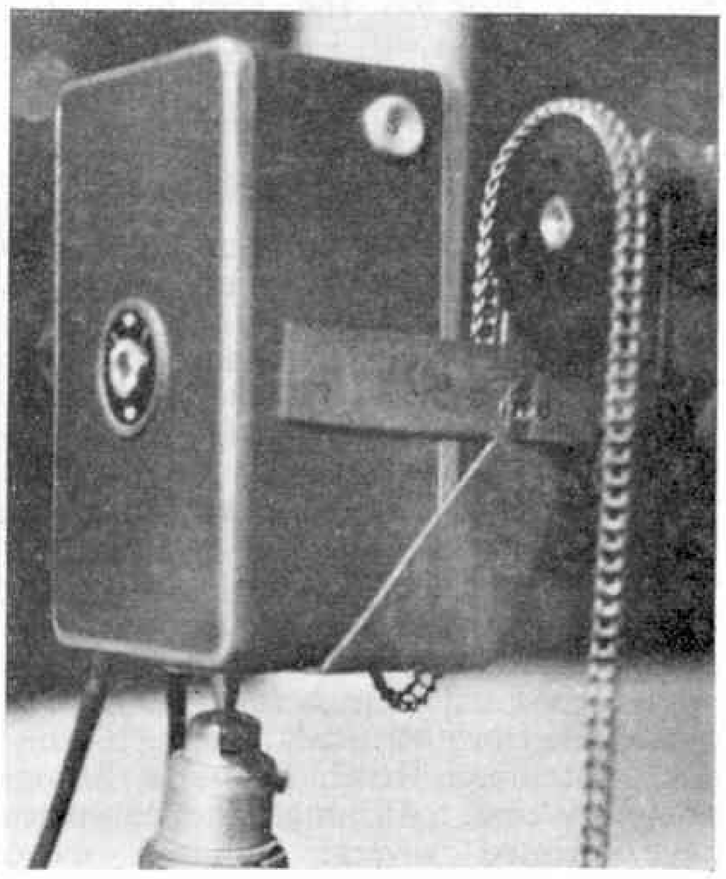
"Using the Meccano *Magic* Motor bolted to a bracket made of other parts of his kit, clamped between my camera and tripod, I fastened a piece of fine wire around the starter button on the camera and connected this to the piece of Sprocket Chain John had been using. By varying the length of chain between Motor, sprocket and camera starter button I was able to get delays up to about 25 seconds. I can control the length of my shots by winding up the camera motor to run the desired time.

* * * *

"The operation of the gadget is quite simple. The Meccano Motor runs until it has taken up the slack in the chain, then it hauls the camera starter button into the "take" position and stalls itself against the resistance of the button. No damage to Meccano Motor or camera need be feared as the torque of the delay device is very low.

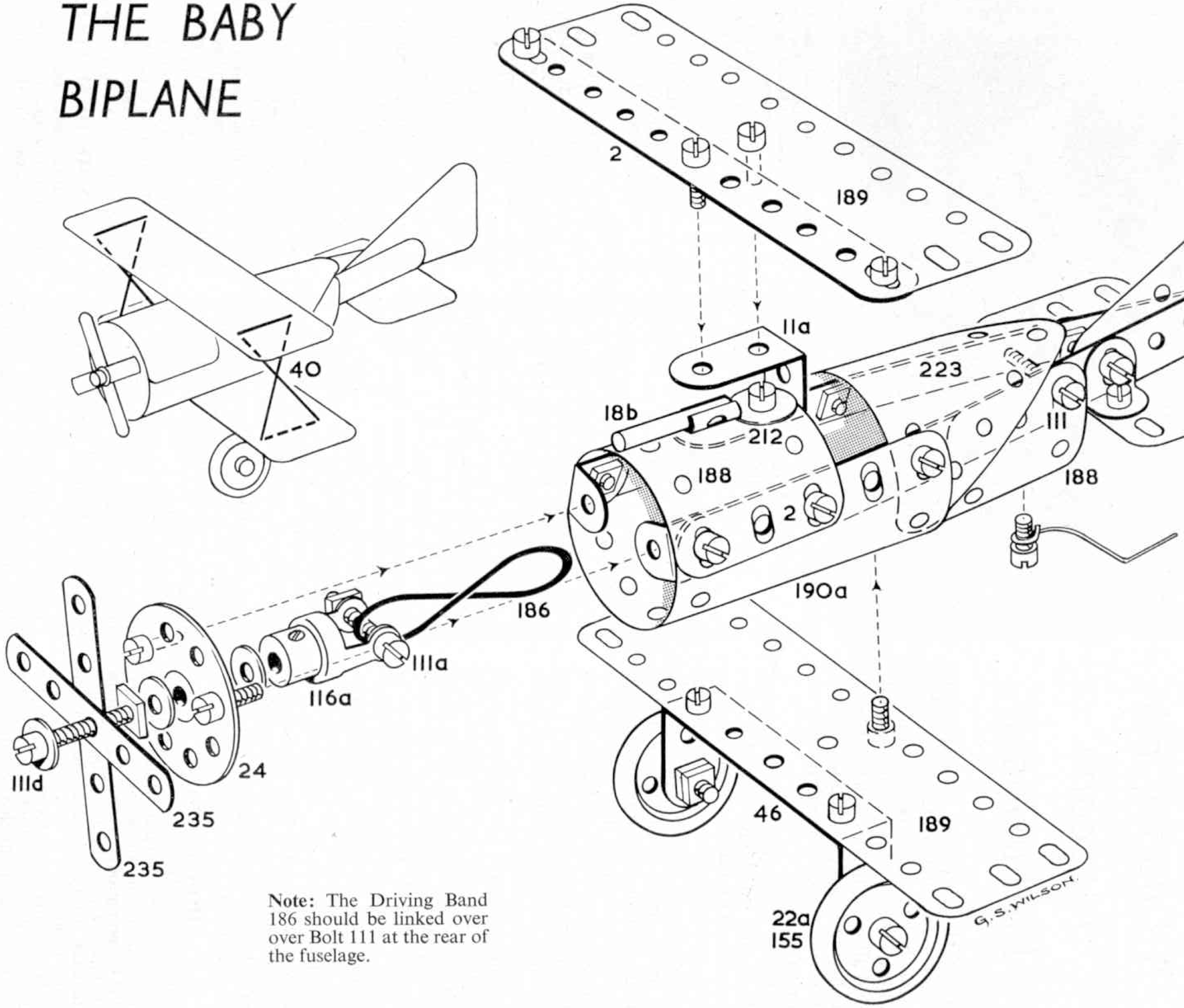
"I am delighted with the results I have had with this device. The only alteration I have to make is to the bracket. John wanted his Meccano Parts back so I made a mild steel bracket, as you will see from the two pictures I have enclosed. The pictures will give some idea of how the device is constructed and used."





Novel use for the Meccano *Magic* Motor and a length of Sprocket Chain is shown in these two pictures illustrating Mr. Battram's cine-camera device.

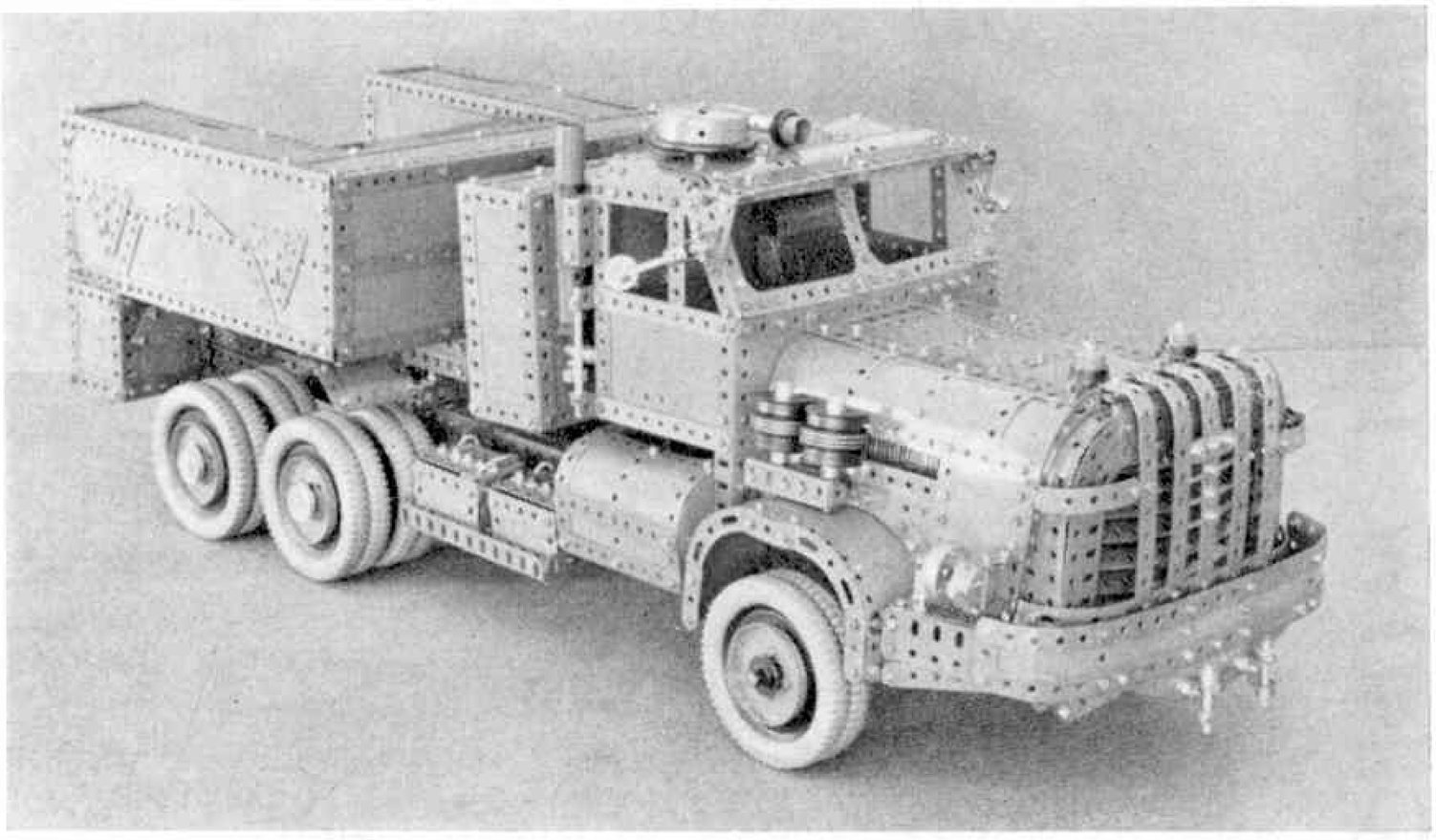
THIS STEP-BY-STEP VIEW SHOWS HOW TO BUILD THE BABY BIPLANE



Note: The Driving Band 186 should be linked over over Bolt 111 at the rear of the fuselage.

WINTER MODEL-BUILDING COMPETITION

Cash Prizes: A Chance For Meccano Enthusiasts



A fine model of a Thorneycroft Prime Mover built by M. Brookfield, Blyth Bridge, Nr. Stoke-on-Trent. The model was awarded First Prize in an "M.M." Competition.

EACH Christmas brings thousands of newcomers to the Meccano hobby as the result of gifts of Outfits from parents and friends, and all these lucky boys will now be enjoying the pleasure and thrills of Meccano model-building for the first time.

Older and more long-standing Meccano enthusiasts are also busy with their Outfits, and all this activity reaches its peak during the early months of the New Year. As a result, many thousands of attractive and interesting models are being constructed every day and some of these will be well worth entering for the special Model-Building Competition we are announcing here, writes "Spanner".

In this contest fine cash prizes are offered for the best models submitted to us. Details of these prizes are given in the panel in the next column, and the competition is open to anyone possessing a Meccano Outfit, no matter what his age, or where he lives. Further, the competition is so arranged that everyone will have the same chance of success, however young or old he may be and irrespective of the size of his Outfit.

HOW TO ENTER

In entering the contest, a competitor may choose any subject he likes best for his model, but he will be wise to select one that he can reproduce realistically with the Outfit or parts available to him. He has, therefore, a very wide field from which to make a choice.

After a suitable subject has been decided upon it is then necessary to set to work to construct it as neatly and realistically as possible from standard Meccano Parts. Let me emphasise that it must be original —models that are merely copies of those shown in Meccano Instruction Books or other Meccano publications will not, of course, be eligible.

When the model is completed the next thing is to obtain either a good, clear photograph or, if this is not possible, make a good sketch of it, and send this to us. *The actual model must not be sent in any circumstances.*

If, however, you cannot obtain a photograph and you are not much good at sketching, you can ask one of your pals to make the sketch for you. *The model itself, however, must be your own unaided work.*

It is also advisable to enclose with the photographs or drawings a short description of the principal features of the model, mentioning any points of special interest you wish to bring to the attention of the judges.

OPEN TO ALL

As we have already stated, the competition is open to model-builders of all ages living in any part of the world, and in order to give everyone a fair chance, entries will be divided into two sections, A and B. Section A is for competitors under 14 years of age on March 30 next, and Section B is for competitors aged 14 or over on the March 30 next. Please note that in each of these Sections a separate set of prizes will be awarded and full details of these are given in the panel on this page.

The judges will award the prizes for models that are most original in subject, and which are well proportioned and sturdily constructed. Competitors who possess only small Outfits need not feel that they will not stand much chance against competitors who have large Outfits at their disposal. Small, well-built, sturdy and original models will have a far better chance of success than a large and complicated structure that is rickety in construction and poor in design, and which does not show much originality in its subject.

NOTE THESE RULES

Competitors who will be entering a Meccano Competition for the first time should note carefully the following simple rules:

Before posting (*Continued on page 46*)

Winter Model-Building Competition

THE PRIZES

The following prizes will be awarded in each Section of the Competition:

SECTION A

(Competitors under 14 years of age on March 30 next)

First Prize	**Cheque for £5.5.0**
Second Prize	**Cheque for £3.3.0**
Third Prize	**Cheque for £2.2.0**
Ten prizes each of 10/6d.	

Certificates of Merit also will be awarded in this Section to those competitors whose entries just fail to reach prize-winning standard.

SECTION B

(Competitors who will be aged 14 or over on March 30 next)

First Prize	**Cheque for £7.7.0**
Second Prize	**Cheque for £5.5.0**
Third Prize	**Cheque for £3.3.0**
Ten prizes each of £1.1.0	

The first double-deck bus in Mauritius prepares to leave on its inaugural run. It is one of six Leyland Titans, with 150 h.p. diesel engines and semi-automatic gearboxes, now operating between Curepipe and Port Louis, where the road climbs 1,700 ft. in sixteen miles The vehicles have 72-seat bodywork built locally, using body framework supplied by Metal Sections Ltd. of Birmingham.

CALLING ALL BUS SPOTTERS

Surveying The Shelves: Some Outstanding Books Of 1962

ONCE again it is time for my annual review of books on buses, coaches, trams and trolleys, and as I survey the publications along my shelves I cannot help feeling that 1962 was London's year in this sphere. Ian Allan Ltd. added a much-welcomed little volume to their *A.B.C. British Bus Fleets* series by publishing, at 2/–, book No. 11, which covers London coach operators.

The cover shows a typical scene in a down-town area with one of Banfield's coaches plying for hire to Hampton Races. Not only are there photographs of coaches bearing such romantic-sounding titles as *Dalesman*, *Cavalier* and *Seagull*, but several glimpses into the past of such veterans as a Daimler char-a-banc, an early "Tiger Cub" and a Gilford "Hera". One priceless illustration is a reproduction of a Lewis Cronshaw poster of the early 1920's when motor coach touring was still in its infancy. The book covers the fleets of Banfield, Birch Bros., Cronshaw, George Ewer/Grey-Green Group, Samuelson, Tilling and Timpson. It is to be hoped that an enlarged 1963 edition will be out soon.

Dryhurst recently added two more volumes to their excellent series on the history of London's transport system. In *The First Thirty Years* (5/–) is related the story of the London motorbus from 1904 until 1933. The 64 prints are really fascinating. As well as showing familiar scenes —such as the double-deck coach prototype LT 1137—there are many more

By DAVID KAYE

which were fresh to me such as a G.W.R. 30 cwt. Burford with its 18-seat Vickers body and the very first motor bus in the Metropolis—Harry Lawson's Bristol-Daimler of 1899! If you want to wallow in nostalgia, this is the book for you!

* * * *

Premier (3/–), by the same publishers, is an account by K. C. Blacker of a London "pirate" bus company, which challenged the supremacy of the mighty London General between 1922 and 1934. Premier built up a fleet of Leyland "Titans" and "Tigers" to run in cut-throat competition with the giants, but unforunately the passing of the 1930 Road Traffic Act proved to be their undoing. However, Premier were prepared to go to great lengths rather than meekly give up their new routes. This quite exciting story, well told, is illustrated with sixteen vintage views. I for one eagerly anticipate the second volume in this series.

* * * *

Dryhursts have certainly had a most successful year, and I can thoroughly recommend a third volume, which they published in 1962. This is *The Felthams* (5/–), and tells the story of the Union Construction Company, which provided Londoners with three forms of transport —the first trolleybuses, much of the rolling stock on the Central and Piccadilly Lines, and finally their most famous product—the "Feltham" class of tramcar. As with similar Dryhurst publications the appendices at the end give all data down to the nearest 1/16th of an inch! You can read all about *Bluebell* and *Poppy* and their successors, including their lives following the abandonment of the London tramway network. You can follow the fortunes of the "Diddlers", and in the last chapter can rejoice that at least some of the U.C.C. products have been preserved for posterity.

* * * *

Before we leave London, a word must be said about *The Vehicles of London Transport and Its Predecessors—the Bristol "B" Class and other Bristol Vehicles*". This title—which sounds rather eighteenth century—is published by the P.S.V. Circle at 2/8½d. and obtainable from 252, Albert Road, London N.22. It gives full details of every bus of Bristol manufacture known to have run in London since 1930, including buses which were loaned post-war and those buses temporarily transferred when the L.T.E. took over the Eastern National routes in the Grays area.

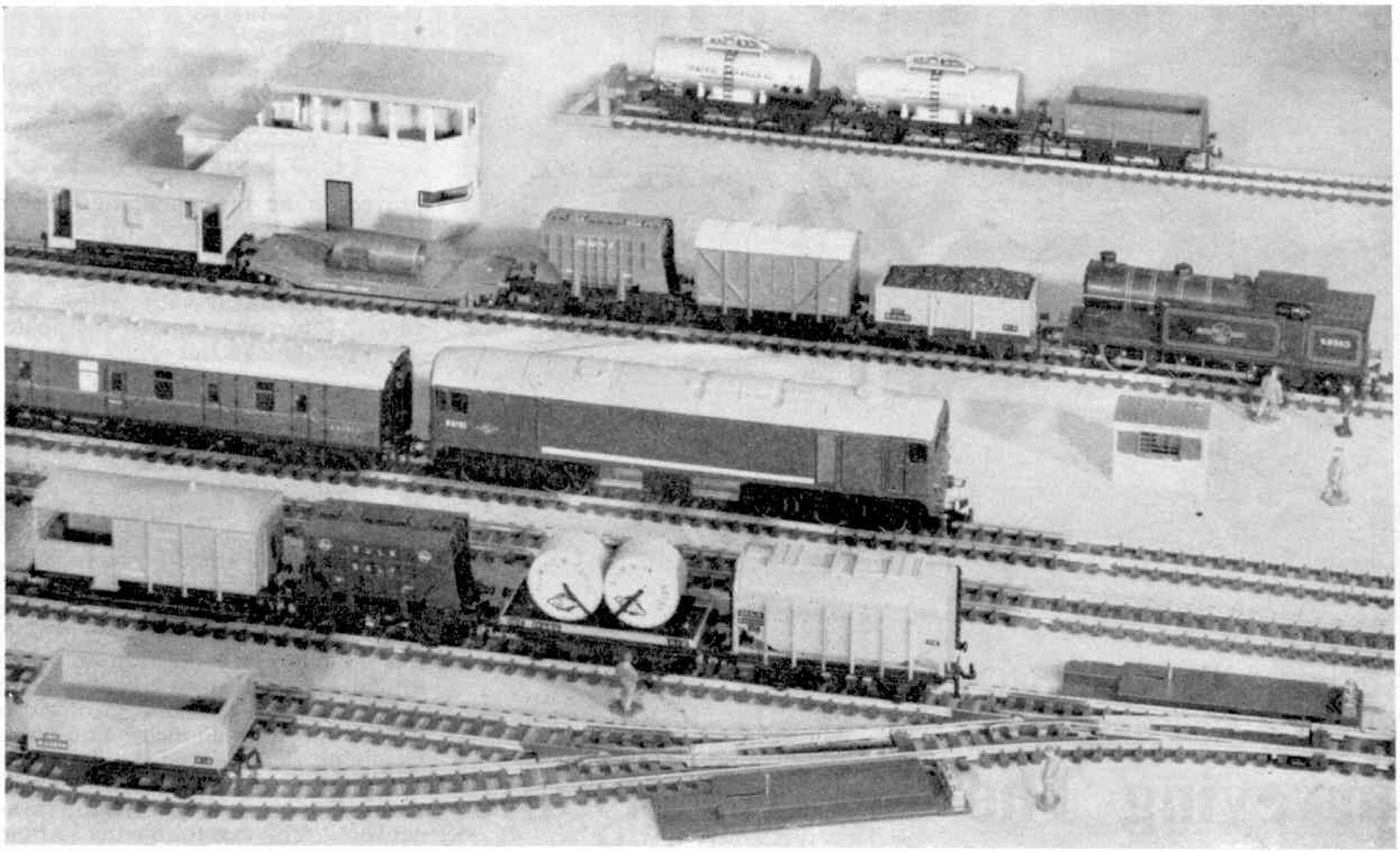
* * * *

Last year, I reviewed a book on Bradford trolleybuses. This time, it is the turn of Bournemouth. David Chalk's *Silent Service*, published by the Omnibus Society at 2/8½d. and available from 91, Malvern Road, Thornton Heath, Surrey, is a well-produced account of the Bournemouth trolleybus from its inception in 1933 up to the present, with enough technical and route details to satisfy anyone. The eleven photographs and route map will recall many happy memories to readers who know and love these smart, silent servants in their delectable surrounds. There is a full list of routes (with route number changes) and a fleet list as appendices.

* * * *

Moving on to trams, 1962 saw the end of that formerly great system—Glasgow. D. L. Thomson has written an excellent

(*Continued on page 46*)



DIESEL CO-BO: A QUESTION ANSWERED

THIS month, I am including the picture you see above because it provides the opportunity for a chat about a matter that has been raised in correspondence by quite a number of readers who are Hornby-Dublo enthusiasts. Briefly, it concerns the correctness of using the Hornby-Dublo Co–Bo Diesel Locomotive on passenger trains. Apparently, due to the inclusion of the Two-Rail Co–Bo in the No. 2033 Diesel-Electric Goods Train Set, this type of engine has been specially associated by some of you with freight traffic only; hence the enquiries.

There is no reason at all why this Locomotive, either in Two-Rail or Three-Rail form, should not be em-

HORNBY RAILWAY COMPANY

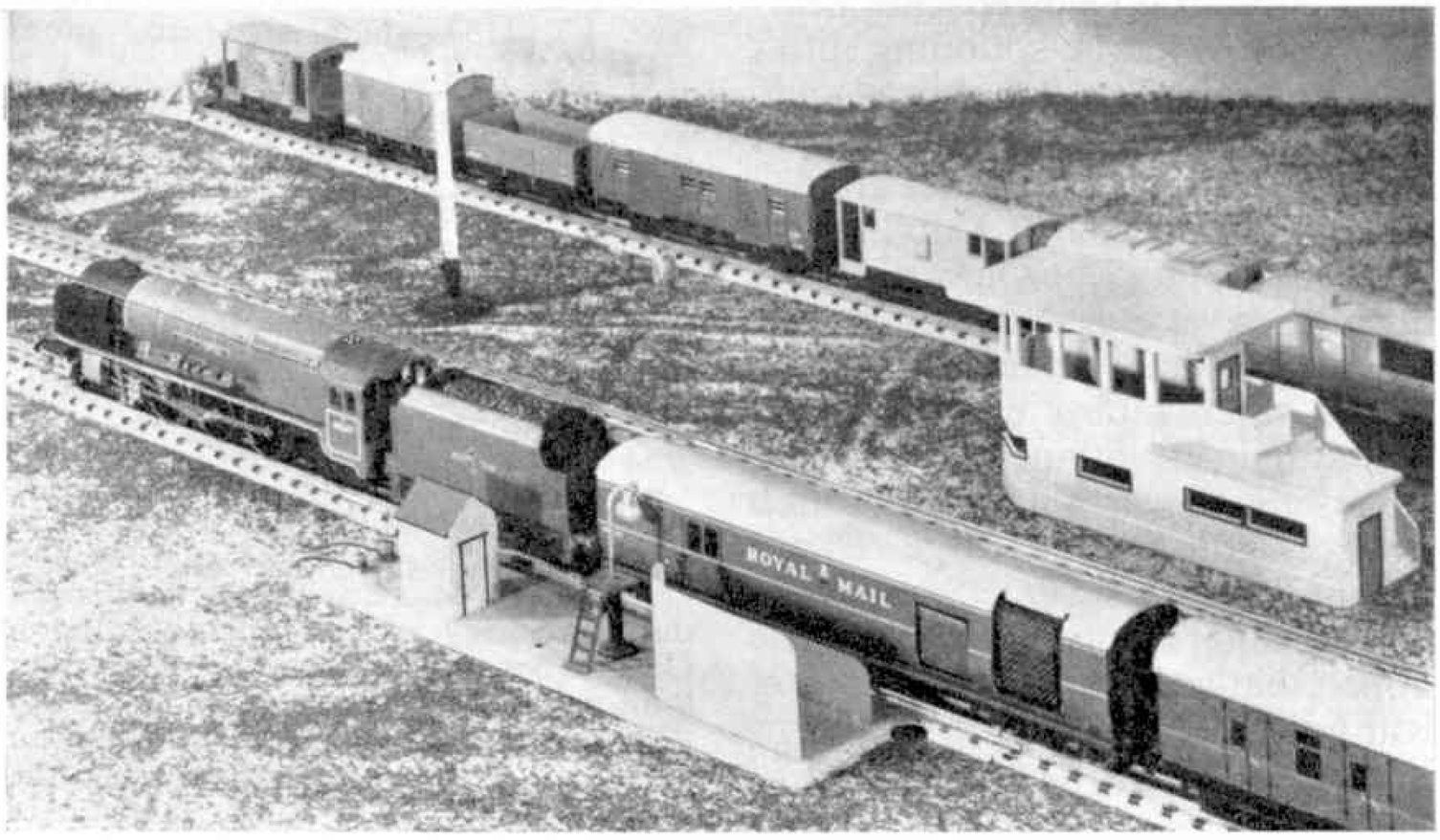
By The Secretary

ployed on passenger work, as the picture shows. I am glad to be able to clear up this matter so simply and so emphatically. I am sure the diesel enthusiasts among Hornby-Dublo owners will be pleased as well.

Above, Co-Bo Diesel takes a passenger train along a Hornby-Dublo Two-Rail main line between tracks busy with freight traffic.

Apart from its unusual wheel arrangement, the Co–Bo Diesel helps to provide the variety that miniature railway owners always seem to desire, since its "shape" distinguishes it from the other Diesels in the system, which are themselves well

On a Three-Rail layout, a miniature "Down Special Mail" headed by L.M.R. 4–6–2 "City of Liverpool" passes the lineside apparatus where all is ready for the exchange of mailbags.



varied in any case. In place of the high bonnet nose characteristic of the Co–Co Deltic, which seems to give it something of a haughty expression, the "face" presented by the Co–Bo is perhaps plain, but purposeful. A train hauled by it is obviously "going places", but does not appear to be making much fuss in doing so.

Although the Co–Bo has a special appeal to those who follow L.M.R. practice, I know it is popular with those whose interests in miniature are more varied. On many layouts one can encounter, at the same time, the locomotives —and certainly the rolling stock—representative of several Regions.

The Co–Bo, therefore, is an extremely useful Locomotive, being equally at home on passenger or important freight train duties. Going over our previous talks concerning this Locomotive, I find that this particular aspect does not seem to have been stressed previously, so I hope these remarks will redress in some measure a balance which readers may have thought came down heavily in favour of Co–Bo-headed freight trains.

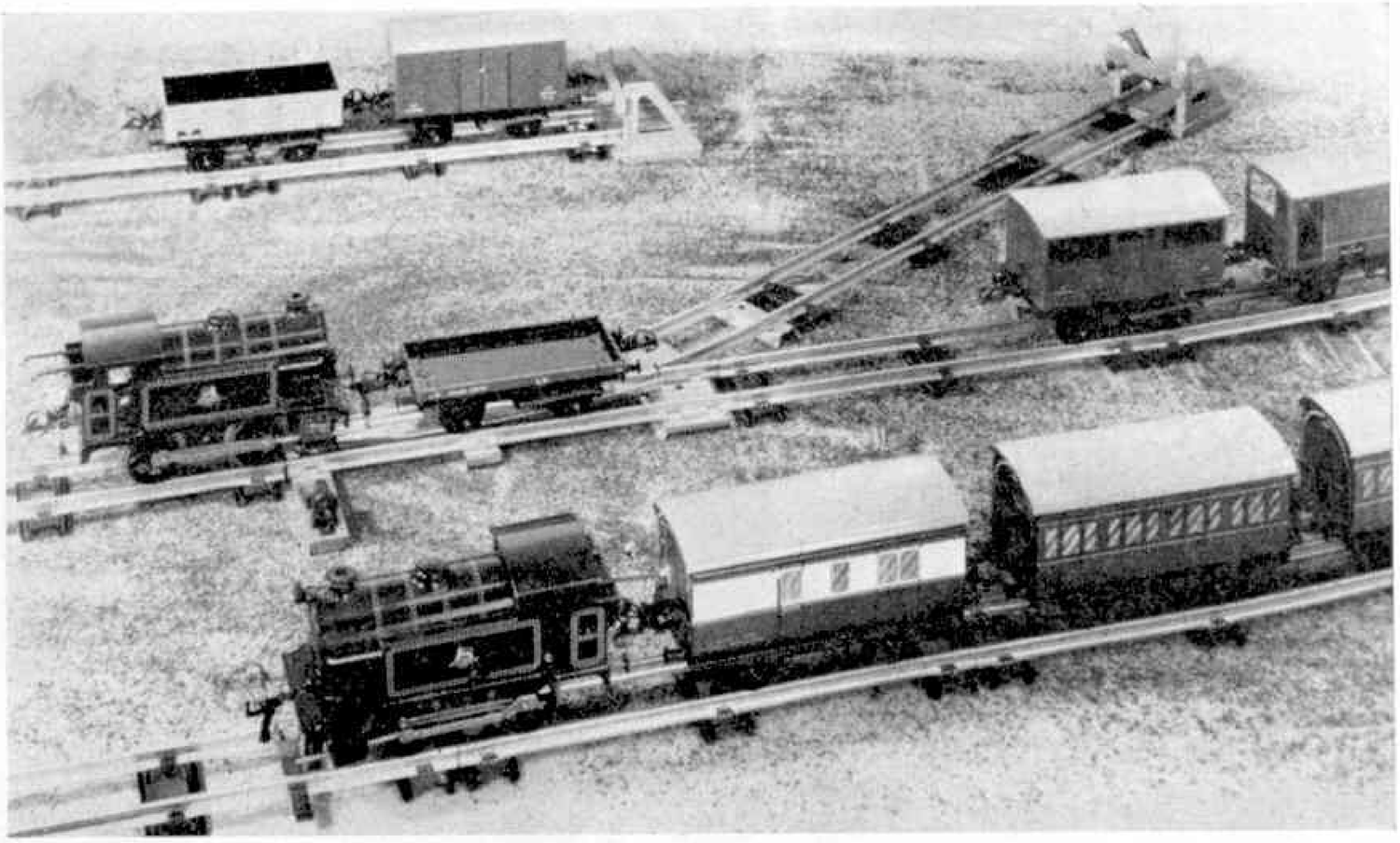
A special attraction on many Hornby-Dublo layouts, both Two-Rail and Three-Rail, is the exchange of mail bags that can be carried out by use of the T.P.O. Mail Van and appropriate set of Lineside Apparatus. Both the installation and the working of this equipment are fairly straightforward, but I must repeat the precaution that it is not wise to place the Lineside Apparatus nearer to a curved section of track than the length of a Straight Half Rail on a Three-Rail layout, or a Straight Two-thirds Rail on a Two-Rail layout. This apparent difference is due to the fact that the fractional rail system is different in each case.

Must be separate

Wiring the Lineside Apparatus to the necessary power supply is not difficult, but let me emphasise that the supply for the T.P.O. must be completely separate from any used for train-driving purposes. Not every power control unit that appears to have two separate supplies is necessarily suitable for T.P.O. working. The two outputs may be derived from a common source. If such a unit is already in use and you wish to add a T.P.O. to your equipment, the use of dry batteries, for T.P.O. purposes only, may well prove to be the solution. The T.P.O's demand on current is only momentary, just the time taken for the contact shoe on the van itself to run along the contact rail that forms an essential part of the Lineside Apparatus. Therefore, a set of suitable batteries will have quite a reasonable life, and three Ever Ready 126, Drydex H30 or Vidor V.0008 4.5 volt dry bell batteries will give satisfactory results.

Position of the T.P.O.

The position of the T.P.O. Mail Van in a train is something that has to be considered. Passenger-carrying vehicles should not be marshalled (*Continued on page 46*)



HINTS FOR THE GAUGE "0" OPERATOR

By "TOMMY DODD"

BY the time you read this, many of you will have become Hornby Train owners for the first time. Many others, already owners of established railways, will no doubt have made various additions to their lines, or will at least be planning what to buy next. To whichever of these two groups you belong, I hope the following notes will be useful.

I need not deal in detail with the track, as our two most recent chats have been on this topic, but I will repeat, even for the benefit of the most experienced train owners, that Hornby Rails should be treated with care, while layouts in which the individual pieces have to be forced into position should be avoided. And do not forget to use the Rail Connecting Plates if your layout is only temporary.

Running Hornby Clockwork Locomotives is quite a simple business and the instruction leaflets packed with Train Sets or separate Locomotives should be carefully followed. I expect that many of you do take notice at first, but perhaps after a time lubrication and general maintenance are apt to be neglected in the excitement of making fresh additions to the track or rolling stock. Therefore, be careful to do what the instructions tell you and, if you want your engine to give good service for a long time, keep on doing so.

Even where a layout is mounted on a baseboard, train running has to come to an end sooner or later. Perhaps the engine and rolling stock are left on the track on a permanent railway, but in many cases the layout board has to be stowed away and they will have to be packed up. In the case of temporary railways, the whole of the equipment has to be put away. This operation should not be rushed, so allow yourself plenty of time to carry it out once the temporary suspension of train services has been ordered. See that the right things go in the right boxes and take care that the couplings and similar fittings are not damaged in the process. Everything then will be just as you want it for starting operations again when the next spell of your train operations begins.

Now I want to draw your attention to our picture, in the centre of which you see a No. 40 Tank busy with a short goods train. The No. 50 Low-Sided Wagon is being pushed towards the two other waiting vehicles, the engine having collected it from the short spur, or siding with Buffer Stop, that branches off from the running track. I suspect the engine is actually working a simple form of "pick-up goods" train. With such trains on the railways themselves wagons are collected from stations here and there and assembled into a train that will make its way to a convenient marshalling yard. From there the various vehicles will be sent on to their different destinations.

Unless you have a really big layout it will hardly be possible for you to carry out this scheme entirely, but you could at least manage the "pick-up goods" part of the programme. Traffic can be distributed to local sidings and stations in a similar manner, so that on some journeys your engine will stop and detach a wagon or two here and there, until perhaps it

(*Continued on page 46*)

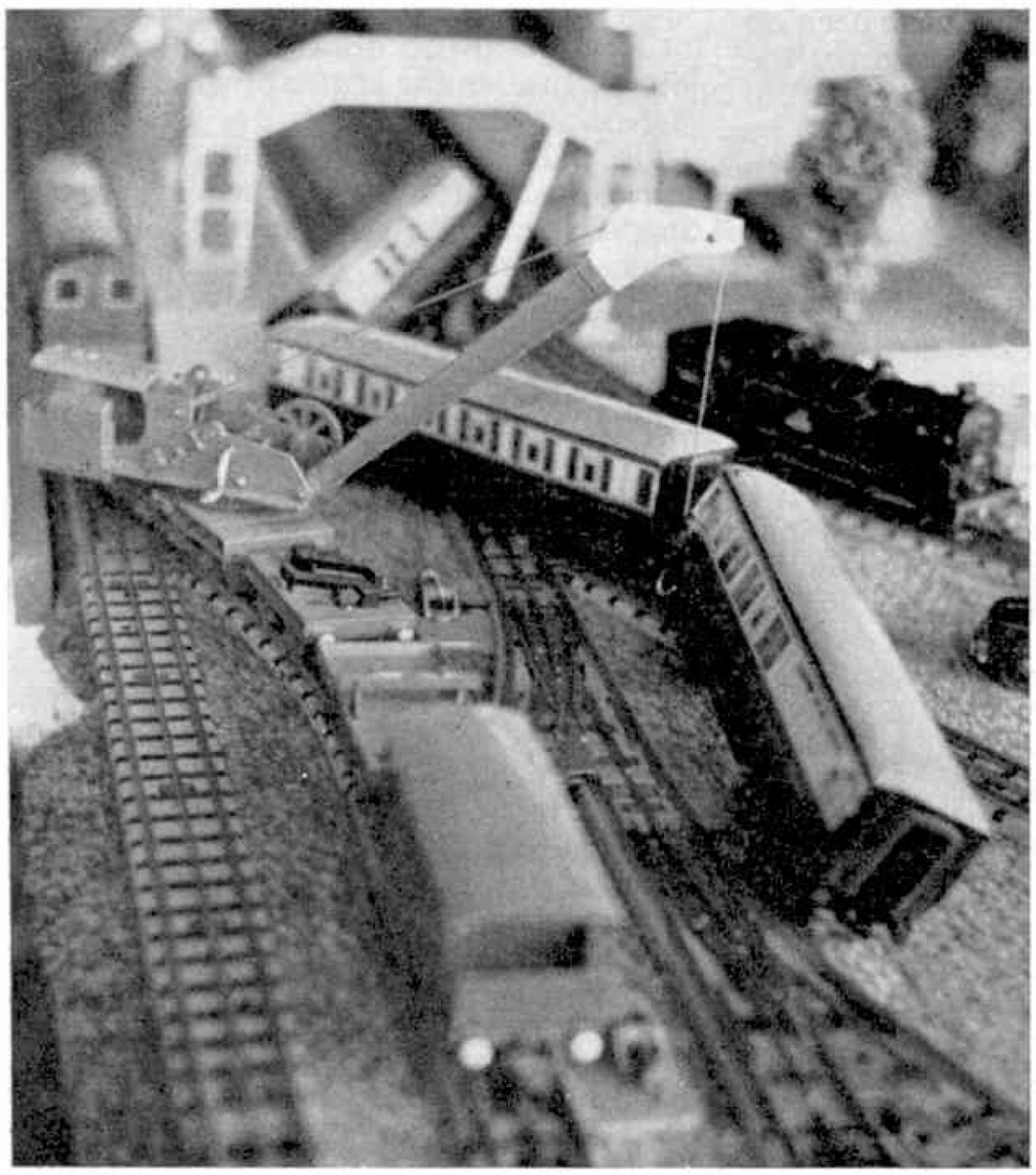
In the picture above two No. 40 Tanks are busy on a Hornby layout. A stopping train on the foreground track passes a shunting goods on the line in the middle of the illustration.

"THE SOUTHERN RAILWAYS SYSTEM"

"LAYOUT MAN" describes a Hornby-Dublo scheme in S. Australia

"Bristol Castle" pulls in opposite a Co–Co Diesel at "Central" station, terminus of the Hornby-Dublo layout of Kim Bird, who lives in South Australia.

THE *Southern Railways System* is the name of the Hornby-Dublo railway shown in the pictures on this and the following page. It has been developed by Kim Bird, of Belair, South Australia, who has provided some really good photographs, and very complete notes, describing the layout as it now stands. This splendid Three-Rail scheme really began, when our South Australian friend was six years old, as a Hornby Gauge 0 layout. This was built up over several years into a fairly extensive system, but when a Hornby-Dublo Electric Train Set came into his possession, as a gift for his twelfth birthday, the period of development as a Hornby-Dublo layout started. It is interesting to know that the original rails and control gear, and the locomotive and rolling stock with which operations were begun are still in service today.



A derailment outside "Central" has caused the Breakdown Crane to be called out and here it is waiting to begin lifting the coaches involved.

The addition of a return loop to the original oval, a type of layout with which you are all familiar, formed an early step in the building up of the present system. These features are still incorporated, the oval track providing a continuous circuit for long main line journeys when required, while the return loop, which is outside the main oval—not inside it, as is more usual—provides a useful there-and-back route, on which there are two stations, mainly for local traffic.

The railway is not too easy to describe geographically, but, leaving the oval track and the loop for the time being, let us start at *Central*, the principal station of the whole system. This is devoted entirely to passenger traffic. There are six tracks serving a corresponding number of platform faces, two inner platforms being islands with tracks on both sides of them. Track arrangements have been well planned with traffic requirements in mind, good use being made of Buffer Stop sections and Uncoupling Rails in conjunction, so that the locomotive of an arriving train can be uncoupled and can stand, electrically isolated, close to the Buffer Stop. Another engine can come on at the opposite end of the train concerned and work it away either to the carriage sidings or, in the case of shorter-distance trains, on another journey.

MOTIVE POWER DEPOT

Between *Central* and the next station, known as *East Central*, the six platform tracks converge into two. Hereabouts is a motive power depot, with a steam shed served by a Hornby-Dublo Turntable, and a two-road diesel depot nearby, where Diesel Locomotives only are dealt with.

East Central forms, in effect, a sort of inner-suburban junction point, for connections here give access to and from the continuous oval, which passes through the platforms on one side of the station. Leading straight ahead, from the other side of the station is a track which finishes up in the extensive carriage sidings and freight depot that you can see to the left of the upper picture on the next page.

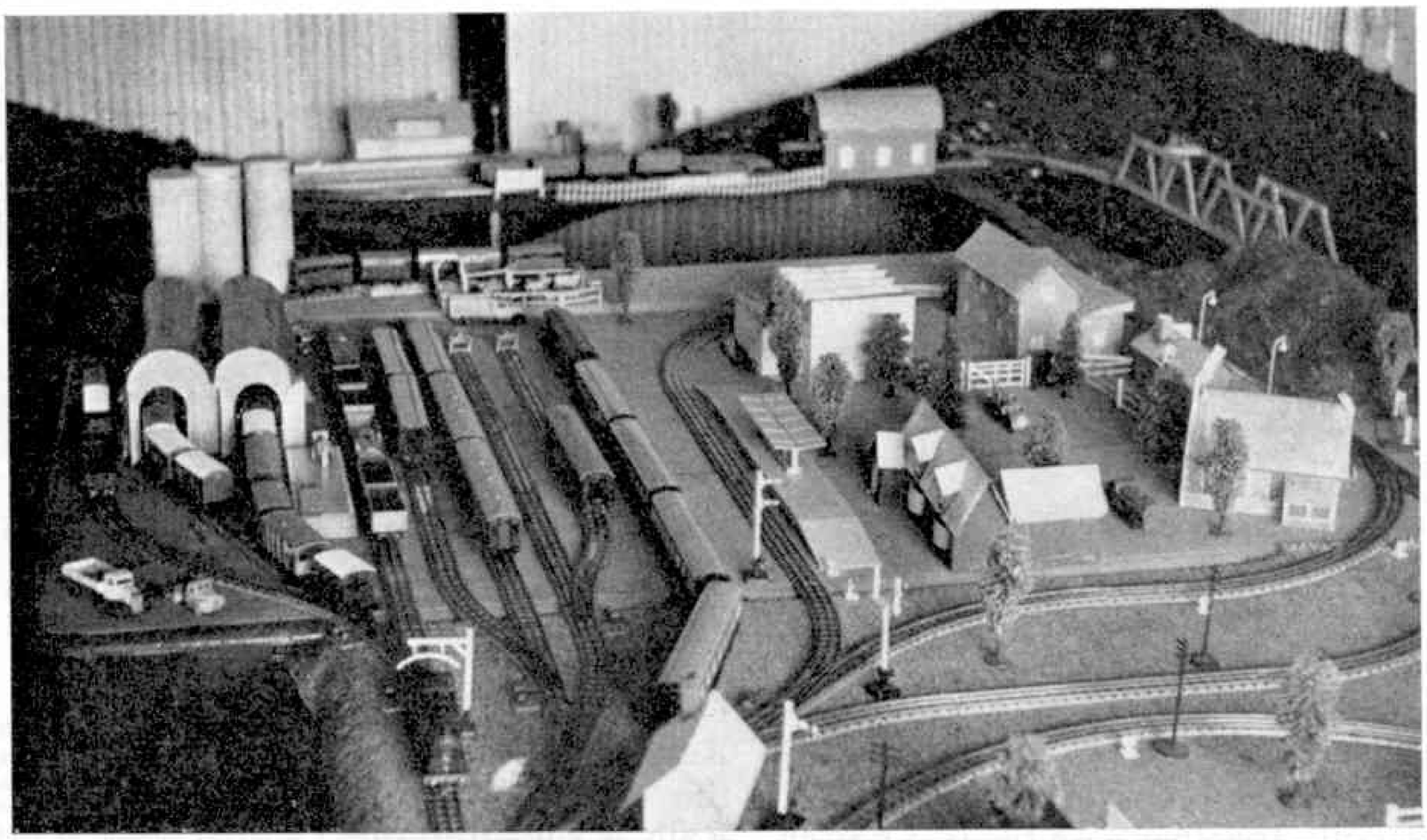
The same illustration shows exactly how the reverse loop lies in relation to the rest of the system, as the Points connecting

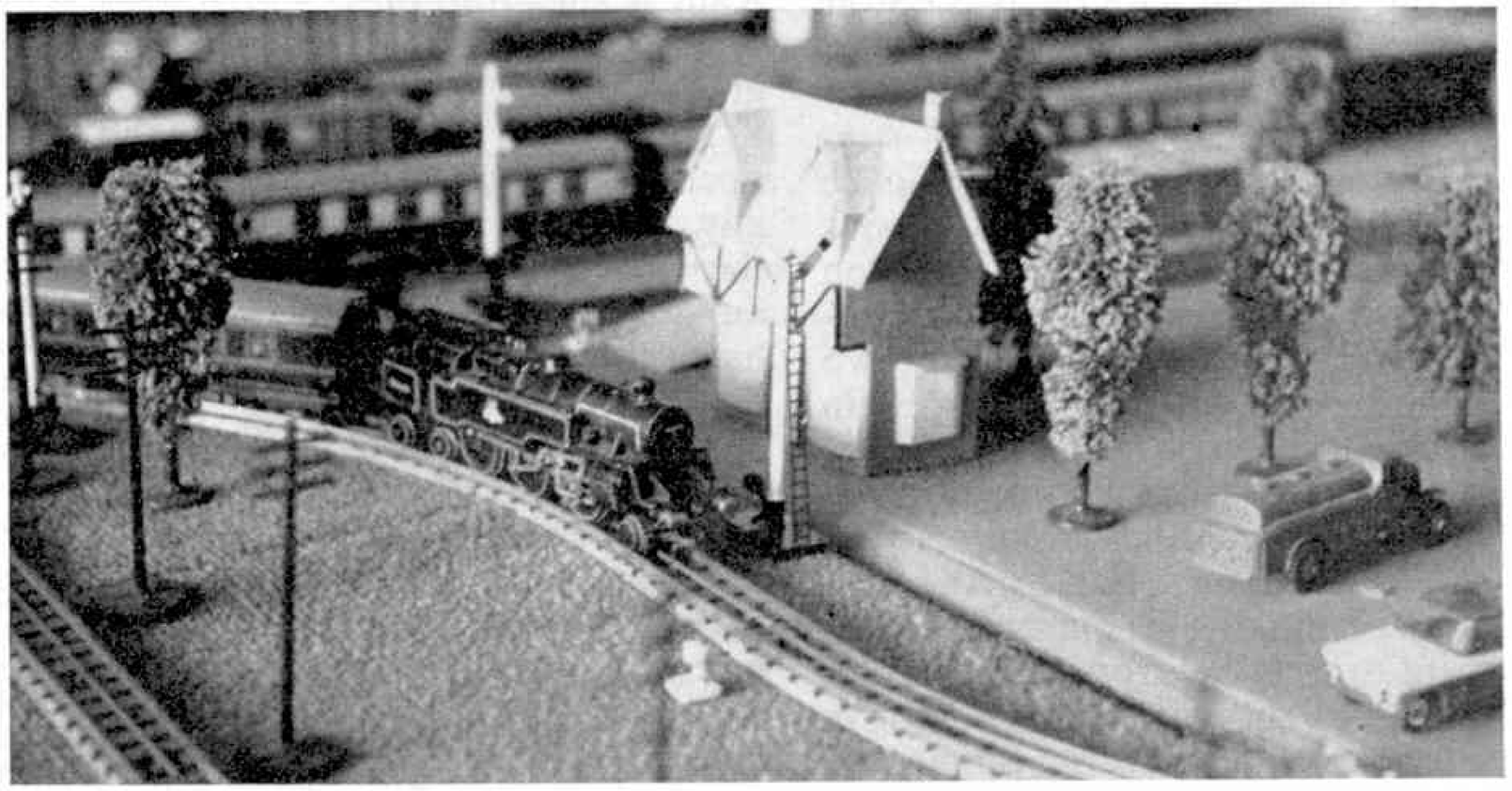
with the rest of the track are plainly seen just to the right of the building in the central foreground. The return loop encloses a suburban and light industrial area, which is well off for rail facilities.

There are two separate stations on this short length of track. One is right in the centre of the picture we have been talking about. The position of the other, the platform of which is out of sight, can be located from the lamp standards projecting beyond the building roofs, just below the girder bridges. Incidentally, the curved track in the right foreground forms one end of the main continuous track.

On the opposite side of the main oval from *East Central* is a station which is simply named *Junction*. Here, crossover connections with the main oval and with a passing loop add considerably to the traffic working possibilities. This loop is extended beyond the main oval so that it runs more or less parallel to the tracks approaching *Central*, but on the opposite side of the baseboard. In the other direction, the passing loop is extended, joining the return loop by the Points just visible on the right hand side of the upper illustration on this page.

In the same picture you will notice a track, between the reverse loop and the main oval, which appears to lead out of the picture. Actually it crosses on the level, by means of a Diamond Crossing, the extension of the passing loop to which I previously referred. It then branches off outside the main baseboard and on a descending gradient, after passing the girder bridges, curves round to reach the station known as *Armadale* which forms the central background to the illustration. There is a passing loop at this station, the branch generally being single track, and there is a goods siding as well, which is extended to serve a quarry situated in the hills visible in the distance.





Top: A general view across one end of the layout, showing goods depot and sidings, a return loop serving two stations and, in the background, the branch track through "Armadale". Below: A 2–6–4 Tank takes the winding track through a picturesque section on a morning train from the main station to "Chelsea".

TIME-TABLE WORKING

After *Armadale*, the line climbs a gradient and makes a more or less straight run to the end of the branch, at *Chelsea*. Here there are several loops, useful for dealing with freight traffic and for running-round purposes. Two of the loops have dead-end extensions where wagons can be left, while locomotives can be dealt with in the two-road locomotive depot.

The train services are run according to well-organised programmes drawn up to provide time-table working, for weekdays, with separate tables for Saturdays and Sundays. Passenger train make-up is carefully regulated, as it has to be, because there are at present only just enough vehicles to meet service requirements. The train programme is nicely varied and many of the long-distance trains include Restaurant or Pullman Cars.

Care is taken in the marshalling arrangements to see that there is either a Passenger Brake Van or a Brake-Second vehicle at each end of every train. This avoids shunting complications on arrival at terminal points for, although the railway does provide for continuous running, the time-table programme involves end-to-end operation. There are in all 28 passenger Coaches, Pullmans and Vans.

Freight stock is extensive, with more than 60 vehicles in service. In working freight trains, "loaded" and "empty" wagons are conveyed to out stations and are left to be loaded or unloaded as the case may be. The wagons are marshalled in the trains and are shunted at depots and sidings according to the freight they carry. An unusual feature, at least on a miniature system, is that each station is provided with covered accommodation for freight traffic. There are cranes available, too, for any heavy lifting.

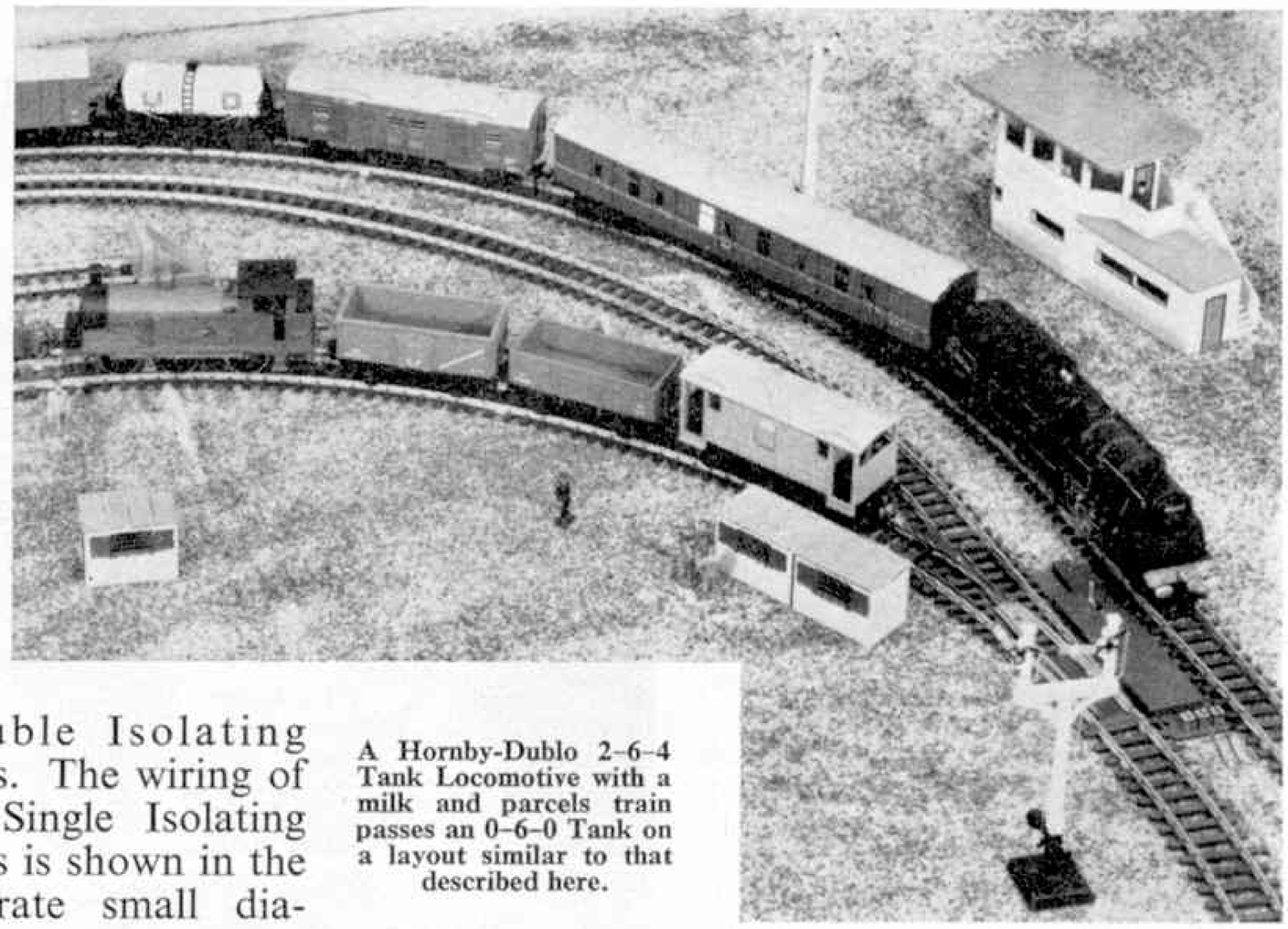
Reference to cranes reminds me that the mobile equipment includes a Breakdown Crane, which is kept for the few genuine mishaps that occur. You can see the Crane in action in the lower picture opposite. It is being tried for position, before the supporting jacks are unloaded from the relieving bogies.

The 4–6–2 *Duchess of Montrose* Locomotive, with which the layout started, still takes an active part in main-line working, supplemented by a 4–6–0 Castle and a Co–Co Diesel. For freight traffic a Hornby-Dublo 2–8–0 holds pride of place, more local working being shared by a Bo–Bo Diesel and 2–6–4 and 0–6–2 Tanks.

A point to be noted in connection with train operation is that the gradient sections on the *Chelsea* branch mean that loads are subject to restriction. At *Armadale* too, there is a definite maximum number of wagons that can stand in the loop, otherwise trains on the main line would not be able to pass them in safety.

Linesman's Monthly Feature For The Two-Rail Operator

Double Track With Loop



A Hornby-Dublo 2–6–4 Tank Locomotive with a milk and parcels train passes an 0–6–0 Tank on a layout similar to that described here.

OUR layout diagram this month shows a double track oval with an inner loop line and sidings. This layout, together with the two power control units, will fit on a baseboard measuring nine feet six inches by four feet six inches.

Following our normal practice the double track allows two trains to operate simultaneously, each on its own main track, and under individual control. There are two isolating sections on the inner main track and also one on the inner loop, in each of which a locomotive may stand while another traverses part of the same main line for the purpose of making a shunting movement or to travel from one group of sidings to another. The locomotive must stand between the Single and Double Isolating Rails. The wiring of the Single Isolating Rails is shown in the separate small diagram.

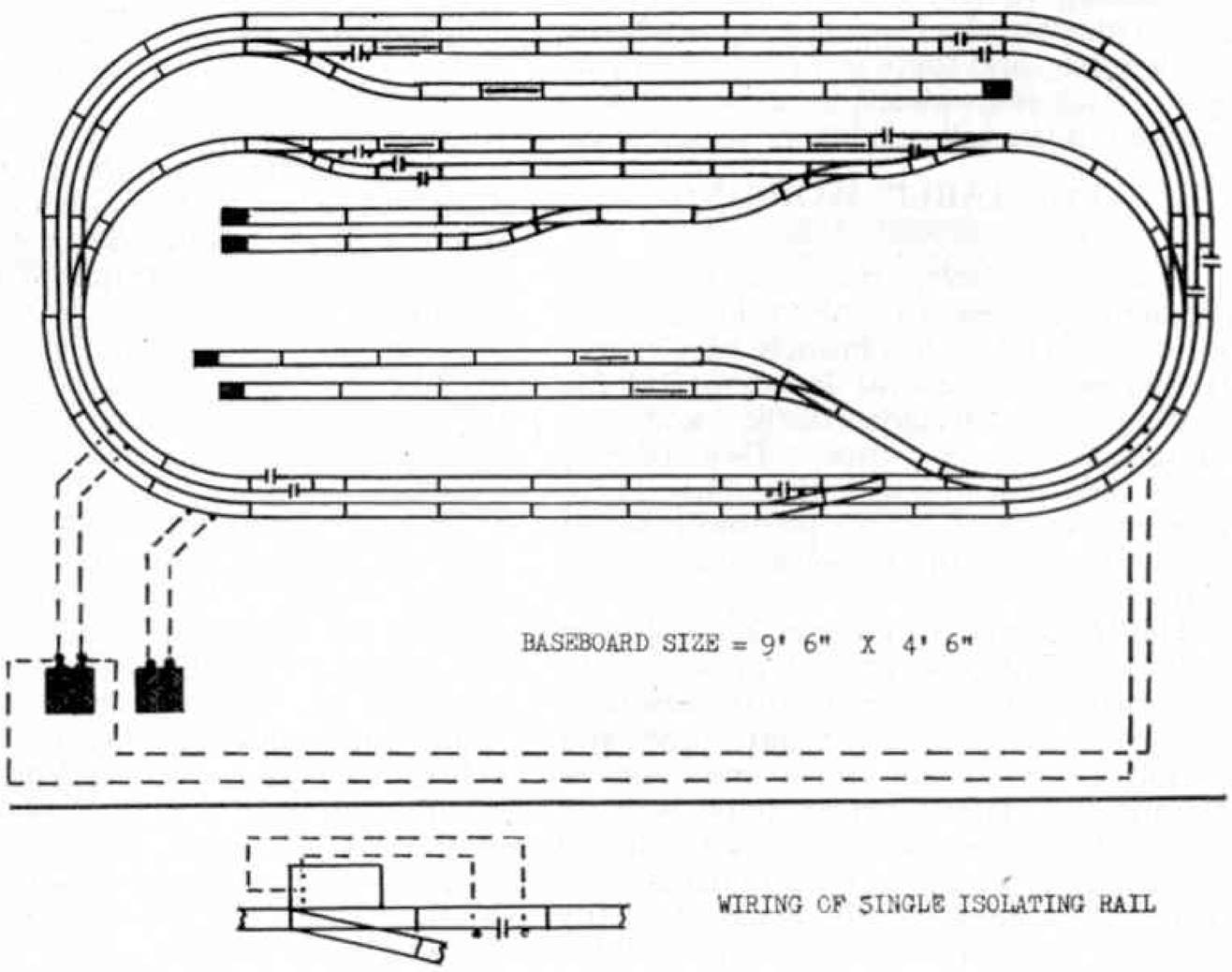
The Points are shown as hand operated, but they can be electrically controlled if desired, as also can the Uncoupling Rails. It would be an advantage to the operator to have the items situated most remotely from the control units electrically operated to avoid having to walk round or lean over the track. One of the power control units must have an additional output, however, if electrically-operated accessories are included in the layout.

The two sidings which branch from the inner loop line are engine shed tracks, and space will allow for a Hornby-Dublo two-road Engine Shed to be placed here. The other sidings are for rolling stock storage and trains can be uncoupled, and left in them, by means of the Uncoupling Rails. These are situated in positions which allow an engine to back its train into a siding and release it, when it can then proceed to pick up another train elsewhere on the layout, or can move on to the shed if its period of operation has finished.

The rules of operation should allow for clockwise travel on the outer track and anti-clockwise on the inner, thus following prototype practice. This allows a train on the inner track to back into a siding, so that the engine can eventually be free to leave its train and depart.

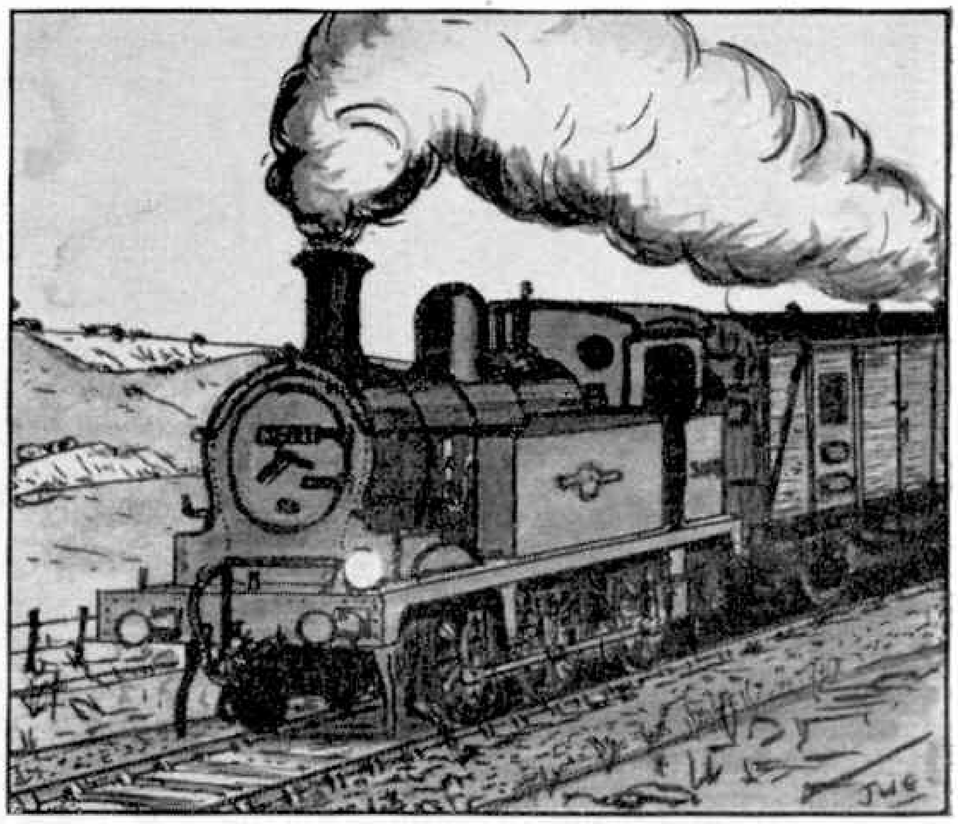
ITEMS REQUIRED

16	Curved Rails	2710
11	Curved Rails, Large Radius	2719
2	Curved Terminal Rails with Suppressor	2714
1	Curved Terminal Rail with Suppressor, Large Radius	2721
3	Curved Half Rails	2711
9	Curved Quarter Rails	2712
49	Straight Rails	2701
8	Straight One-Third Rails	2703
5	Straight Two-Third Rails	2702
3	Straight Two-Third Single Isolating Rails	2738
5	Straight Two-Third Double Isolating Rails	2739
4	Right Hand Switch Points	2728
7	Left Hand Switch Points	2729
6	Uncoupling Rails	2745
5	Buffer Stops	2450
2	Power Control Units	



WIRING OF SINGLE ISOLATING RAIL

HORNBY REPAIR SERVICE



THE service operated by Meccano Limited to expedite repairs to Hornby-Dublo Locomotives and Tenders, Hornby Gauge 0 Clockwork Trains and Clockwork and Electric Meccano Motors is being constantly widened in its application. Dealers authorised to offer this service, who are listed below, display a distinctive Accredited Service Specialist sign. Customers may, of course, send repairs to the Service Department of Meccano Limited, at Hanson Road, Aintree, Liverpool 9, if it is more convenient for them.

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Dundee—Brian Sherriff, 93 Victoria Road.

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Luton—Aeromodels, 59 Wellington Street.

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Reading Model Supplies, 1 Hosier Street, St. Mary's Butts.

CHESHIRE
Birkenhead—Birkenhead Model Supplies Ltd., 32 Grange Road West.
Moreton—Mortimer Ltd., 254–260 Hoylake Road.
Neston—J. Bailey, The Model Shop, Parkgate Road.
New Brighton—G. Longworth, 78–80 Rowson Street.

CORNWALL
Helston—Eddy & Son (Helston) Ltd., 21 Meneage Street.

CUMBERLAND
Carlisle—R. M. Hill & Sons, 36–40 Castle Street.

DENBIGHSHIRE
Wrexham—Craftoys Ltd., 4 Centenary Buildings, King Street.

DEVONSHIRE
Barnstaple—E. Gale & Son Ltd., Joy Street.
Bideford—E. Gale & Son Ltd., 2–3 Mill Street.
Exeter—John Webber (Sports) Ltd., 50–51 High Street.
Plymouth—F. T. B. Lawson Ltd., New George Street.

DURHAM
Durham—C. T. Applegarth, The Model Shop, 92 Claypath.
Stockton-on-Tees—K. Dean, 41 Bishopton Lane.

ESSEX
Chelmsford—Chelmsford Model Co., Baddow Road.
Colchester—West End Cycle Stores, 65 Crouch Street.
Ilford—Pages of Barkingside Ltd., 19 Broadway Market, Fencepiece Road, Barkingside.
Southend-on-Sea—Alco Supplies, 133 Hamstel Road, Southchurch.

GLAMORGAN
Cardiff—James Lendon, 194 Fidlas Road, Llanishen, The Model Shop, 9 Mill Lane.
Neath—Pearns Ltd., 16 Alfred Street.

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Bristol—The White Tree Electrical and Toy Bazaar, 28 North View, Westbury Park.
Cheltenham—I. Newman (Cheltenham) Ltd., 127–9 Bath Road.
Cirencester—S. E. Trinder, The Model Hangar, 71 Cricklade Street.
Gloucester—C. & N. Ash, 106 Westgate Street.

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The Sports Shop, 14 Seymoor Road, Westbourne.
Portsmouth—Robin Thwaites Ltd., The Hobby Shop, 28 Arundel Street.
Southampton—H. I. Dowding & Son Ltd., 265–267 Shirley Road.
Woodcraft Supplies Ltd., 38 Northam Road.

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Bexleyheath—W. J. & H. G. Jennings Ltd., Department Store, Broadway.
Canterbury—Barretts of Canterbury Ltd., 2 St. George's Street.
Gillingham—J. R. Baker (Gillingham) Ltd., 14 Canterbury Street.
Maidstone—F. T. Gilbert & Son, 116–118 Week Street.

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Glassfords, 89 Cambridge Street, C3.

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Loughborough—Clemersons Ltd., 43 Market Place.

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Cleethorpes—H. Loftis, 196 Grimsby Road.
Lincoln—S. A. Nobbs & Son Ltd., 2 Norman Street, and 16 Sincil Street.

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H. A. Blunt & Sons Ltd., 133 The Broadway, Mill Hill, N.W.7.
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Model and Tool Supplies, 604 Kingston Road, Raynes Park, S.W.20.
Models (City) Ltd., 2 The Arcade, Liverpool Street Station, E.C.2.
Palace Model Shop, 13 Central Hill, Upper Norwood, S.E.19.
W. & H. (Models) Ltd., 23 Paddington Street, Baker Street, W.1.

MIDDLESEX
Edgware—Cresta, 1 Cinema Parade, Manor Park Crescent.

MIDLOTHIAN
Edinburgh—Harburn's Hobbies Ltd., 116 and 122–124 Leith Walk.
Messrs. Donray, 302 Morningside Road.

NORTHAMPTONSHIRE
Peterborough—Oliver Carley, 35 Broadway.
Wellingborough—Littlefolk, 24 Market Street.

NORTHUMBERLAND
Whitley Bay—The Whitley Model Shop, 67 Park View.

NOTTINGHAMSHIRE
Nottingham—Beecroft & Sons Ltd., 16 Pelham Street.
Gee Dee Ltd., Friar Lane and Goose Gate.

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Oxford—A. S. Rising, 243 Banbury Road.

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Perth—Bob Croll, 75 High Street.

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Oswestry—Vaughans, 56 Beatrice Street.

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Cyril Howe's of Bath Ltd., 15 Abbey Churchyard.
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Stafford—John Bagnall, South Walls Road.
Stoke-on-Trent—John Pepper (Hanley) Ltd., 61–65 Piccadilly.
Walsall—S. H. Granger, Caldmore Models, 108 Caldmore Road.
Wolverhampton—A. J. Chamberlain, 39 Darlington Street.

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Hornton's (Models & Toys) Ltd., 32 Stephenson Street, 2.
The Perrys, 769 Alum Rock Road, Ward End.
J. Williams, 51 Comberton Road, Sheldon.
Sutton Coldfield—W. Gill & Son, The Parade.

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Bradford—Bradford Model Railway Centre Ltd., 202 Keighley Road, Frizinghall.
W. Carter, 15 Bridge Street.
Leeds—King Charles Sports Centre, 18 and 20 King Charles Street.
Sheffield—Fred Shaw, 42 Church Street.
The Redgate Co. (Sheffield) Ltd., Moorhead.

CHANNEL ISLES
Jersey—George D. Laurens, 3/5/7 Queen Street.

EIRE
Dublin—Southern Model Railway Co., Lower Leeson Street.

NORTHERN IRELAND
Belfast—The Model Shop, 36 Wellington Place.
Thornton & Co. Ltd., 40/42 Donegal Place.

WESTERN AUSTRALIA
Perth—Jack Stanbridge's "Hobbyshop", 54a Canning Highway, Victoria Park.

WITH THE SECRETARY

Club and Branch News

CLUB NOTES

An Outing To A Power Station

ASHTEAD FREE CHURCH M.C.—The varied and interesting programme which has been enjoyed has included a quiz, games evenings, and a model racing evening organised by Clifford Price. For the races some members made miniature tanks from cotton reels and matchsticks. An outing to Kingston Power Station was a great success. In addition to the tour of the station itself, there was a model railway of which the members made good use, an engineering exhibition, a film show and different fire-fighting demonstrations.

Excellent talks given have included one on *Cars* by Peter Dennis, which was illustrated by a superb Meccano model of an Austin mini-van; *Fishing* by Brian Mayes, and one by Mr. Woods, a member of the Church, on *Patra House* at Leatherhead—the laboratories where packages, etc., are tested. Mr. Woods illustrated his talk with colour slides, and a slow motion film showing articles deliberately being dropped and broken. Every meeting ends with a short epilogue and prayer. *Secretary:* Robert Nagel, 41 Newton Wood Road, Ashtead, Surrey.

AUSTRALIA

MAYLANDS M.C.—The Club has obtained its first consignment of the new Meccano Parts, and members are particularly pleased with the plastic Plates. The general set-up of the new-style Manuals is fully approved. Some of the boys had found it irksome to read the instructions in the old-style Manuals, and they are delighted with the exploded drawings and the numbers indicating the Meccano parts which are the main features of the new books.

The Boys' Committee have organised a "busy bee" of members to tidy up the Club yard, plant a lawn, etc. Some scrap metal—including a vintage car!—is lying about the premises, and it is hoped to sort it all out and make a little money for the Club from its disposal. *Secretary:* Trevor Criddle, 17 Kenilworth Street, Maylands, Western Australia.

NEW ZEALAND

CHRISTCHURCH M.C.—Club meetings have been held fortnightly and have been well attended. Model-building has been fully up to standard, and the job of judging entries in Club contests is getting quite difficult so narrow is the margin of merit between respective models. The Club staged a wonderful display at the New Zealand Industries Fair last August. Their impressive array of models included a Meccanograph; fairground model of a merry-go-round; revolving big wheel; auto-reverse gear, small mobile crane; rocking tug boat; mechanical shovel; mountain railway octopus, stationary gas engine and a panel of "simplicity" models. There were also two large mobile cranes each capable of lifting up to 20 lb., a hammerhead crane of super model leaflet size .and a mobile log saw. Each of the two big cranes had a jib about 30 inches long, and was fitted with two motors and an overload "stop"—a light which lit up when the jib was raised too far.

On October 6 the Club were again in the "public eye" at the Christchurch South Intermediate School Fair, where they put on a very successful display of working Meccano models. *Secretary:* David Archer, 33 Evesham Crescent, Spreydon, Christchurch, New Zealand.

ST. JOHN'S (ROSLYN) M.C.—The *Originality* model-building competition referred to in last month's *Club and Branch News* was won by S. Harbour, with a fine model of a motor-driven gantry crane based on a full-size crane of this type which he had seen in a railway workshop. Three other members tied for second place—R. Mercier with an excellent model of a tank; J. Williams with an impressive transporter bridge, and R. McLaren with a model of a crash-proof truck. The entries for the competition were judged by Mr. King, who congratulated the winners upon the high standard of their model-building. At one October meeting S. Harbour gave an interesting talk on *Clutch Drives*. *Secretary:* M. J. Salinger, 8 Maheno Street, Dunottar, Dunedin, New Zealand.

NEW YEAR GREETINGS

I welcome this opportunity of wishing a very happy and prosperous year in 1963 to every member of the Meccano Guild and of the Hornby Railway Company. The past year has seen the further expansion of these twin organisations as more boys have realised that Club and Branch life provide the ideal means of obtaining the utmost enjoyment from the Meccano and Hornby-Dublo hobbies. I look forward to continued progress during 1963.

BRANCH NEWS

NORTH END (PORTSMOUTH)—Mr. Enfield's new layout has been taken a stage further with the installation of the first four of the miniature lamps to light up the motorway. Mr. Enfield is constructing these lamps himself. The layout is achieving a remarkable degree of realism—there is even a little pathway for the porters to cross the line alongside the station. All the brickpaper, pavement paper, advertisements, etc., have been glued in position on the third section of the layout, and the ballast has been laid down.

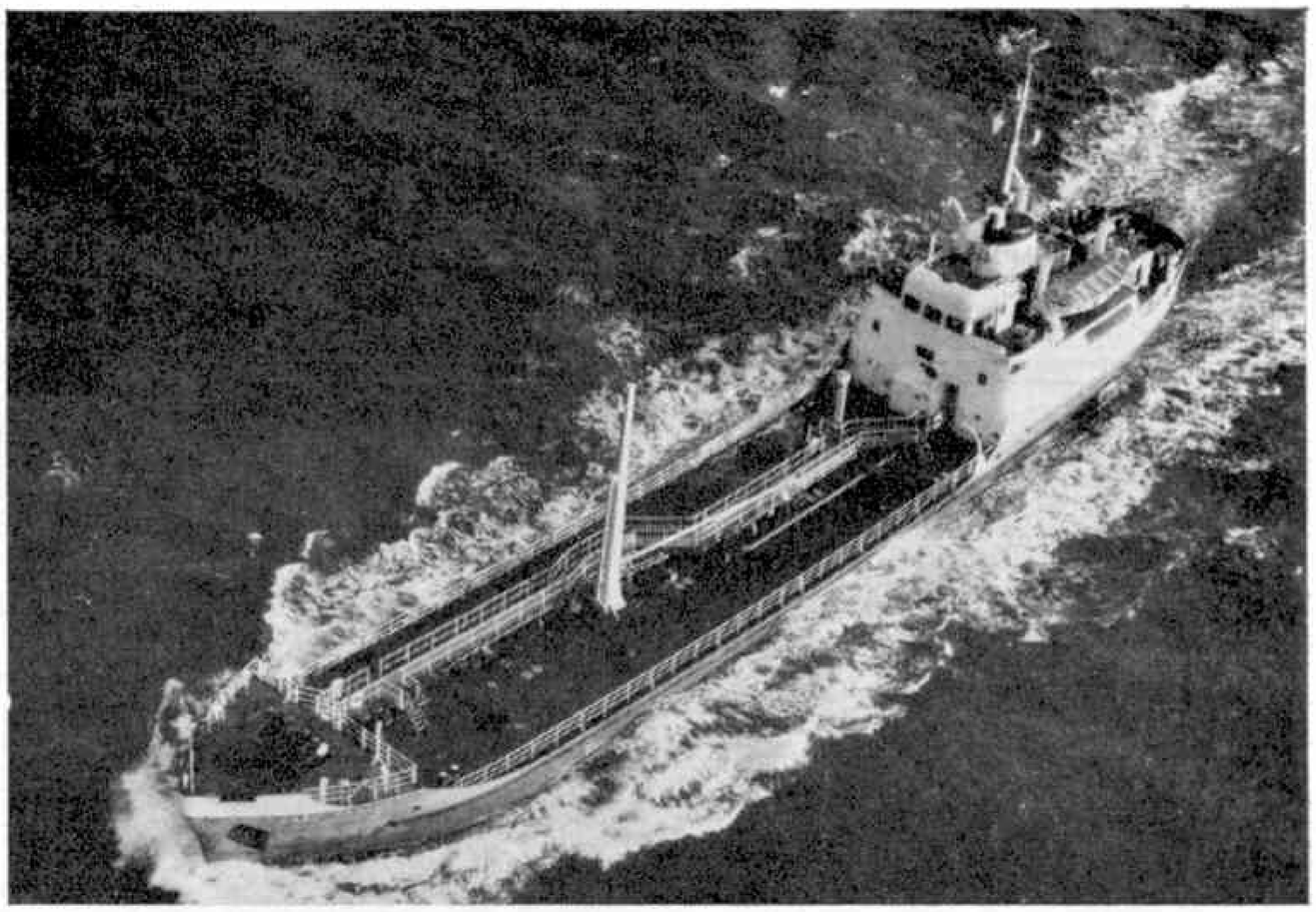
The exterior of the Clubroom and the adjoining flats has been painted, and everything now looks very spic-and-span. Mr. P. Leggatt has prepared two showcards, one bearing the names of the Club and Branch and the other one carrying the wording "Why not join our Meccano Club and Hornby Railway Branch? Everything of interest for boys of all ages". The first showcard has been placed in the window on the Beresford Road side of the Club premises, and the other one in the window on the Stubbington Avenue side. *Secretary:* Mr. A. J. Nicholson, 213 Sultan Road, Buckland, Portsmouth.

"Just play something simple."

NOTES FOR THE SEA-LOVER:

ROBERT GORE'S

COASTER COMMENTARY



The catwalk and small hatches on the m.v. "Esso Ipswich" (1,103 tons) are clearly seen on this picture taken on the vessel's trials two years ago.

A WORD ABOUT TANKERS

THE increasing demand for oil as fuel, both in the home and in the commercial field, has meant that some of our colliers have become redundant. In recent years the older ships have been sold, usually abroad, whereas others have found their way to the breakers' yard. It may well be that collier-owning companies have replaced such lost tonnage with tankers, and now their fleets embrace both types, but there are also fleets which consist solely of tankers.

In this country the biggest coastal tanker fleet is probably one belonging to a major petroleum company; nevertheless, there are several smaller fleets owned by firms who are independent of a petroleum company. The vessels mostly carry petroleum products from the ocean terminals and refineries to depots and other installations, such as bunkering tankage at docks or oil-fired power stations. Generally, the size range is from 200 to 2,000 tons gross, with the majority falling below 1,000 tons. Apart from river and canal tankers, the smallest ones are those on duty in the estuaries and these may resemble small flat-iron colliers, since their minimum of superstructure gives them a certain shapelessness.

Those designed for more distant service will closely conform to the profile of an engines-aft dry cargo coaster, but there are some differences; for example, instead of having large hatch covers there will be a series of much smaller hatches protruding out of the deck. Because a tanker lies very low in the water, tending to sail *through* rather than *on* it, the absence of bulwarks causes the height of the forecastle and poop to be considerably accentuated.

Furthermore, when they are laden there is practically no freeboard, but the fact that the decks may be awash is of no importance, for the hatches which seal the petroleum inside are equally able to keep the sea out.

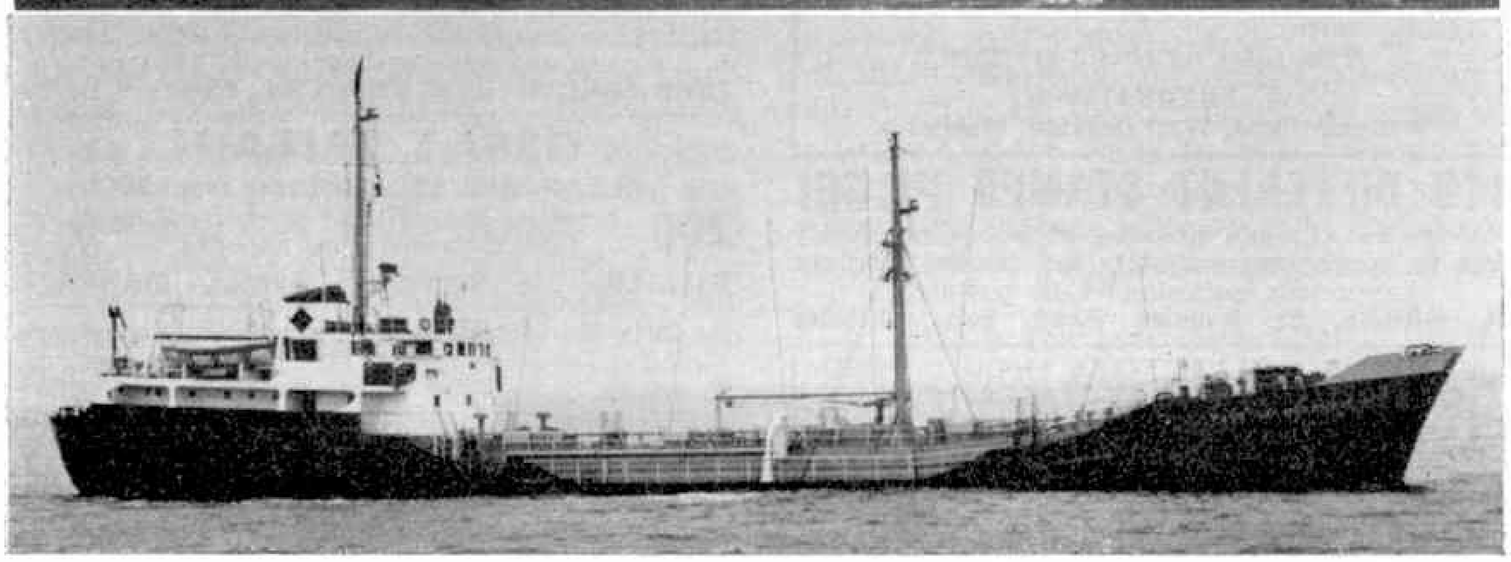
A few of the bigger tankers have a bridge placed a little forward of amidships and it will normally sit astride the tank tops and/or a raised trunk deck running fore and aft above the main deck. To enable the crew to reach one end of the ship from the other in safety a catwalk may be fitted. Masts are light structures, as the derricks are only needed to handle hoses.

Modern tankers are powered by diesel engines but a few of the older, steam-driven vessels which still remain afloat might be identified by a tall funnel surmounted by a cage-like spark arrester.

The largest coastal tankers operating round these shores, mainly from Fawley, are the Lake Maracaibo types, so-called because they were specially designed to meet certain local requirements in the Dutch West Indies. They were constructed in America in 1943–46 and, for their size, were given the very shallow draught of 15 feet, compensated by a broad beam of 60 feet, and were used for topping up bigger ocean-going tankers that, because of their greater laden draught, could not cross the entrance bar of the lake.

Now this hazard has been obviated by extensive dredging (*Continued on page 46*)

Bottom picture: Built a year ago, the Bulk Oil S.S. Company's 970-ton "Pass of Melfort" is shown here. Above: Notice the bridge on the trunk deck of the s.s. "Esso Chelsea."



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FOR OTHER STAMP ADVERTISEMENTS SEE ALSO PAGE 45

For Stamp Enthusiasts

Oriental Pearl

By F. E. Metcalfe

WHEN writing in the July 1962 *M.M.* about Hong Kong's then recently issued interesting set to mark the centenary of its first postage stamps, in 1862, I mentioned that, in view of the great popularity of the stamps of the "Pearl of the Orient", as this Crown Colony is sometimes called, I would have more to say about Hong Kong stamps later on. Well, I really must keep that promise, as since the new definitive issue I also referred to appeared on October 4 last—with all the values up to the new $20 bearing the portrait of Queen Elizabeth in an adaptation from the well-known painting by Annigoni, the Italian artist—Hong Kong's stamps are more the fashion than ever. In fact, one dealer told me that this new set is the season's best seller among collectors of British Commonwealth modern stamps. Fortunately, details of this issue were available in time for inclusion in the new edition of the Commonwealth QE Catalogue.

All of us know that Hong Kong is an island just off the coast of China, and that some years from now its possession will revert to China. We are all aware, too, that Kowloon, a small portion of the mainland, is also part of the colony, but how many of us know that there are actually another 235 islands which come under British rule? True, many of them are merely rocky, uninhabited islets, but one at least—Lantau—has an acreage of 58 square miles. And to cap the lot, Hong Kong has a mountain which is actually 3,141 feet high.

Since the war Hong Kong has made tremendous progress. Huge buildings are springing up "like mushrooms", and when I was speaking recently to an official from Hong Kong who was just home on leave, I asked him if it were not taking a big risk to spend all the millions of pounds on real estate, seeing that Communist China would subsequently take them over. He replied that the rents obtained are so high that in a very few years a handsome overall profit can be made. Well, good luck to them. I would, of course, rather have my modest savings nearer home.

We obtained possession of Hong Kong after the so-called "Opium" war in 1841. In 1860 the Kowloon Peninsula and Stonecutters' Island, were ceded to Britain and in 1898 we obtained a 99 years' lease. So we have got just 37 years more in which to go on collecting Hong Kong stamps, as part of the Commonwealth, provided China does not change its present attitude. I wonder if this possibility ever crosses the minds of those who are building those skyscrapers?

Although the first post office in Hong Kong was opened in 1841, as soon as the colony was founded, the first stamps did not appear until 21 years later, and then came the stamps bearing only the head of Queen Victoria. This design was reverted to when the first "KGVI" issue appeared in 1938, and repeated when we had the "QEII" set of 1954; only the portraits being changed. Of the Queen Victoria stamps, there was an awful lot of overprinting and surcharging. Here, I had better say a word or two about the early stamps, as some of these bear Chinese port cancellations, and these are much prized by specialists. Dealers often have a chuckle when they see these advanced collectors carefully noting the postmarks on the stamps in the stockbooks which they have asked to be allowed to see. Generally, of course, the dealers themselves have already taken care to sort the grain from the chaff.

As I have just said, there were overprints galore among the "QV" stamps, but all were replaced in 1903 by an issue to mark the reign of King Edward VII. Again, the portrait of the monarch occupied most of the stamp, but the design, with its trite ornamentation, was inferior in every way to the one it replaced. Apart from the change of portrait we got the same design for the issue for the reign of King George V. These stamps are fairly popular, and many of them anything but scarce, used, so a worthwhile collection need not take up all one's loose cash by any means; but there are a great number of poor copies about and these—as you would find if you ever tried to sell them—are dear at any price.

In 1938 a new set was prepared for the KGVI period, and once more the postal authorities had the good taste to go back to the original "QV" design, with merely the portrait changed. Again in 1954, when new stamps bearing Queen Elizabeth's portrait had to be issued, the same tasteful design was used, and it is that issue which has just been replaced by the "Annigoni" portrait.

Hong Kong has had the usual special issues, but the one to celebrate "Peace" in 1946 did not follow the general pattern of the rest of the colonies. During the war, when Japan occupied Hong Kong, there was a prisoner-of-war there who was apparently fond of designing, and when the question of a "Peace" issue was mooted he submitted his design, which was adopted. The actual designer told me later that he ultimately sent his sketch to Buckingham Palace for the Royal collection, where no doubt it now reposes.

And that, briefly, is the postal history of the island which one day we will have to vacate; in the meantime, its stamps are well worth our attention. An immense amount of correspondence comes from Hong Kong to Britain, and that means plenty of reasonably-priced used Hong Kong stamps, even high values, with so much air mail. So, if you decide to give these stamps more attention, you will not find supplies at all scarce—a good point about them.

Stamp Gossip

Austria, The Tops

I CANNOT resist Austrian stamps, as the designs are generally so exquisite, and I have "fallen" so much for those which this very artistic country has issued during the past few years that I have actually started to collect them. There was that "Forest" issue of October last year, for instance, which has almost left me spellbound, and then there was that single stamp issued on November 6 last, to commemorate the 125th anniversary of Austrian railways, which I am asking the Editor to illustrate, I am sure it will appeal to *M.M.* readers. Austria issues plenty of stamps, but there is never any attempt to

release short issues, which would mean that fancy prices would have to be paid. And Austria today not only goes in for spell-binding designs but sees to it that there are always plenty of a particular issue to go round, and that the face value is reasonable. There must be many *M.M.* readers who have spent enjoyable holidays in that country, and I am sure that collecting Austria's modern stamps can add to that enjoyment.

SHADES—A DEFINITION

Shades. What are they, a reader writes to ask? In his letter he mentions that he has been collecting "KGVI" stamps in a modest way, and that he is rather pleased with his collection, even though he has had to limit the top value of any set to 2/6d. But, he continues, when showing it to an old collector all the latter would say was that it was like food without salt, as it did not contain even a few shade varieties, let alone any of the more expensive items. So to repeat, what really are shades? Well, the short answer is that they are colour variations of stamps, but there is more to it than that, otherwise they would not be as popular as they are with collectors. The fact is there are new printings of definitive stamps from time to time, and these may result in a variation of the previous colour; here you have what collectors call a shade. If the difference in shade is considerable, then the stamps may be listed in the stamp catalogues (not in simplified catalogues, of course), the point being that from a new shade a particular printing can be identified.

There are a number of shades among British Commonwealth stamps, as well as among the issues of our own country, and these colour variations do pep up a collection. So why not keep an eye open for such changes? Remember, though, that as far as used stamps are concerned many factors may change the colour of a stamp, factors which have no connection with a change of ink used in the printing. These are known to collectors as changelings, and they are not worth putting in one's collection, let alone considering as being of philatelic importance.

WILD LIFE

Many readers will remember the complaints which resulted from the shooting of one of those rare animals, a single-horned rhinoceros, during a State visit to India. What do these rare animals look like? Well India, to mark its "Wild Life Week" (an event which is, apparently, to be held every year to impress upon people that more than just human life needs protecting) issued 5,000,000 stamps which answer that question. Our good friend Mr. E. R. Kooka, of Bombay, has kindly sent along a copy which is illustrated here. I need not tell collectors how popular modern Indian stamps are, and if more come out (and there are plans for other rare Indian animals to be depicted on stamps) like this one, what a rush there will be for copies. Thank you, Mr. Kooka, for giving *M.M.* readers a chance to see such a beautiful stamp.

AIRLINES

The big airlines seem to be having a tough time, but as they exist to provide prestige for the country they represent, as well as to earn profit, I do not doubt that there will be plenty of aircraft around to take us where we want to go this year for our annual holiday. The stamps of Israel are very popular, so I imagine that the one issued on November 7 last year in honour of Israel National Airlines, and depicting a Boeing 707, will be a best-seller.

HOW MANY?

Everybody knows how popular stamp collecting is as a pastime, but nobody knows just how many people take the hobby seriously, although many attempts have been made to formulate an idea. For instance, I read recently that there were 10,000,000 stamp enthusiasts in America alone, but I think that figure is an exaggeration. Here in Britain the estimates have been more modest, ranging from a few hundred thousand to a million or so. I suppose that the true figure is somewhere between those guesses.

This note is prompted by some figures which have been published by the largest philatelic society in the world—the American Philatelic Society—which has more than 13,000 members. The Americans are very cosmopolitan in their taste for stamps, and things like stamp booklets, miniature sheets, stunt stamps, or special issues are more popular over there than in most other countries.

It is the way in which these members are divided up in their preferences which I find so interesting. Naturally their own stamps, followed by those of Canada, are the most popular, but which country would you think came next? The answer is Germany. Other popular countries are France, the Vatican State, Australia (which ranks second to Canada among British Commonwealth countries) and Israel. British West Indian stamps

(*Continued in column two, next page*)

By E. W. Argyle

The Royal Navy On Stamps

H.M.S. COSSACK

THIS famous Tribal Class destroyer was built by Vickers–Armstrongs at Newcastle, and the stamp shows her on her trials in 1938. She earned five battle honours—Narvik 1940; Norway 1940–41; Atlantic 1940–41; Bismarck *1941; Malta convoys 1941. She is perhaps best known for the boarding of the Nazi prison ship* Altmark *in Joessing Fiord, Norway, in February 1940, when she freed 300 prisoners taken by the German pocket battleship* Graf Spee. *The* Cossack *was torpedoed by the U199 on October 23, 1941, and sank four days later.*

H.M.S. ZAFIR

This gunboat was built in the record time of eight weeks, an incredible performance, and was the first of a fleet of twelve prefabricated vessels ordered for the Sudan Campaign, in 1896. She arrived in Egypt on July 23, although her contract date was September, and was in time to assist in the advance on Dongola. Sunk in action in 1898, she was salvaged and was in service on the Nile, towing barges, until 1920, but she appeared on these Sudan stamps for more than 60 years.

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FOR OTHER STAMP ADVERTISEMENTS SEE ALSO PAGE 42

Stamp Gossip—

(*Continued from previous page*)

attract many collectors, Jamaica being first in this group. Mind you, these are first preferences only, and many collectors in the U.S.A. take other countries as well. As for our own stamps, the report states that Great Britain has become one of the most popular of the European countries. This change—and it is a change—is no doubt due to the really interesting character of our stamps during the present reign. I will have a word or two to say on this point some other time.

TIP OF THE MONTH

As you all know, Cyprus recently issued a set of stamps printed in Greece. Now most of the values exist with the watermark inverted, as well as normal (in the case of stamps with horizontal designs, the watermark points to the left and right) and as collectors are interested in such varieties, see how many you can find.

Automation in Ships—

(*Continued from page 14*)

little variation from existing law. This is understandable, provided that the partially-automated ship includes a sophistication sufficient to enable it to respond as a conventional vessel would do in special circumstances not explicitly covered by the rules for preventing collisions at sea, and sufficient also to enable the ship to react in accordance with the rules of good seamanship. There seems little doubt that the crew of a partially-automated ship will require a great deal of extra training to enable them to gain the fullest working knowledge of the processes used to assure the safe and timely arrival of their ship.

Although the idea of reducing operation costs by dropping excess crew members is still very much in the research and development stage, one refining company has already decided to build a supertanker with push-button controls from the bridge. The 51,000-ton oil carrier which would normally have a crew of 50 men, will operate with half that number. The projected tanker is to be built at Schlieker Werft in Hamburg. It will develop 17,000 h.p. Its engine room will have a soundproof booth for operation, but can be fully run from the bridge.

Officially the company concerned is reluctant to disclose details of the vessel. It is thought, however, that automation will mean that a ship will cost less to build, although the host of electronic and computer units needed would probably more than off-set the saving. It is the cutting down of costs once the ship is at sea that really interests operators. Shipping men have said that a vessel designed to cut crew operating costs by half would be nothing less than sensational.

* * * *

BP's FIRST 100,000 D.W. TONS TANKER

The keel of the first 100,000 d.w. tons tanker to be built for the BP Tanker Company was laid at the Barrow-in-Furness shipyard of Vickers–Armstrongs Limited early in December. This vessel will have an overall length of 915 feet and is the first 100,000 d.w. tons tanker to be built in a British shipyard. The ship is also expected to be the largest tanker in the world to have the bridge, accommodation and all machinery at the stern.

A considerable amount of berth expansion work has been necessary at the Barrow shipyard to build the new tanker. In order to accommodate the greater width of a 100,000 tons tanker it was necessary to take two existing berths, each capable of building vessels 100 feet wide, and build them into one large berth which can take ships up to 150 feet wide.

This giant tanker is one of two on order for BP, and is due for completion in 1964. It is intended that all machinery will be installed complete before launching.

A Pilot's Life on the Tyne—

(*Continued from page 3*)

the river, and the water is stirred until it seems to boil.

On some rivers, such as the Thames, there are sea pilots, river pilots and dock pilots. The Tyne has just one breed—a jack-of-all-situations on the river, one moment seeing a huge ship over the harbour bar, the next lining her up for the upriver journey or, perhaps, swinging a ship within the narrow confines of one of England's busiest water-courses. By comparison with this, the job of driving a car through the heart of London, Liverpool or Manchester seems slight.

Road and Track—(*Cont. from page 15*)

motor-cycle Champion of Mexico at the age of thirteen.

He began racing cars when he was sixteen, and quickly made a name for himself throughout America by beating some of the best drivers in the Western hemisphere. A year or two ago I suggested Enzo Ferrari should take him under his wing and train him for Grand Prix racing, which he did, including Ricardo in the Ferrari Formula One team.

If ever a driver showed potential World Championship ability, I think it was Ricardo Rodriguez, and in this Stirling Moss agreed with me when we discussed his prospects a year or two ago. The sad death of Rodriguez robs top racing of a great sportsman and a fine driver.

The Mexican Grand Prix, held over a combined road and high speed banking circuit, was won by Jimmy Clark in a Lotus–Climax from Jack Brabham (Brabham—Climax) and Innes Ireland.

During the launching of the new High Performance Course by the British School of Motoring, I had the chance of sampling their skid-pan at Brands Hatch, in company with chief instructor, Ron Priestly. It is both exciting and educational, being just a part of the 45 gns. course for experienced drivers, which includes eleven hours' driving on all types of roads, plus some track driving. The cars provided for pupils range from the "E" Type Jaguar to the Cooper–Mini.

Tape Recording for Beginners—

(*Continued from page 8*)

Now back to the subject of splicing aids. Although, when you edit tape, splicing can be done without the use of an aid, the joints are poor. If you buy a splicing aid you will find that full operating instructions are issued with it. As the tape passes from left to right over the tape-recording head it can be halted precisely at the end of a given sound. If this point marks the beginning of that in which you are interested the tape can be cut and you will find it is usually possible to run the loose end through the gate until you reach the end of the required effect, at which point it will be cut again. This special section is run on to the right hand spool over the unwanted portion. It is tabbed to show which is the leading end and it can then be left in place ready for splicing into the special reel which you are preparing.

Air News—(*Continued from page 11*)

the normal tail controls and, being directly in the slipstream from the propeller, are extremely effective. In fact, the Skyshark can be landed safely with a ground run of only 35 feet, and will take off in 85 feet.

A simplified two-seat version of the Skyshark, known as the Wren, is already in production. Powered by a 250 h.p. piston-engine, it will be able to operate from any normal heliport.

Winter Model-Building Competition—

(*Continued from page 32*)

your entry, write your age, name and address, and the letter A or B (indicating the Section for which you are entering), in block letters on the back of each photograph or drawing. You should address the envelope to: "Winter Model-Building Competition, No. 1, Meccano Limited, Binns Road, Liverpool 13."

The Competition will remain open for entries until March 30 next. Entries may be sent in at any time between now and the closing date, but any entries received after March 30 will be disqualified.

Dinky Toys News—(*Cont. from page 25*)

Impulse, the house magazine of Communications Systems Ltd.

The actual car park works as follows: A driver wishing to enter the CarHaven approaches the barrier, which you see in the foreground of the picture, and drops the correct coin into the coin machine. This automatically releases the barrier which rises and allows the car to enter. Just beyond the barrier, and placed under the surface of the car park, is a magnetic detector. When the car passes over this, the barrier descends and the entrance is closed. When a driver wishes to leave the CarHaven, he drives towards the barrier and as the car passes a detector the barrier automatically rises, allowing the car to leave. A second magnetic detector is located just on the street side of the barrier and when the car passes over this the barrier once again descends.

You can appreciate that, if it is desired, this car park can be worked on a pay-as-you-leave basis rather than pay-as-you-enter.

I leave you this month with a question. Part of a Dinky Toys model can be seen disappearing out of the picture in front of the Continental Touring Coach on page 25. Can you identify this car? I will give the answers in these pages next month, so you have plenty of time to study the problem.

Calling All Bus Spotters—

(*Continued from page 33*)

Handbook of Glasgow Tramways, which has been published by the Scottish Museum Tramway Society at 7/6d. and is obtainable from 46 Wellshot Drive, Cambuslang, Glasgow. This handbook, with its 108 pages, tells you everything you need to know about the vital statistics of tramcars, and tram routes in this northern city. Even the fare stages are included. The photographic section in the middle has 37 views and two maps.

The **Crosville Handbook for 1962,** published by the operators at 3/– and obtainable from them at Crane Wharf, Chester, lists 1,185 buses and coaches in this huge fleet. It gives such details as stock number, purchase date, type, registration number, firm's number (i.e. fleet number), date sold, and previous owner (if any).

Good reading to you all in 1963!

Hornby Railway Company—

(*Continued from page 35*)

between the tender and the T.P.O. Mail Van, unless these vehicles are to be detached at some intermediate point before the actual mail exchange is scheduled to take place. No problems are likely to arise on the train shown in the lower picture on page 34, the Mail Van itself being next to the tender.

If you are operating a train run for postal purposes only, like the well-known *West Coast Postal*, the position of your T.P.O. Mail Van in the train is not necessarily so important. On an end-to-end layout, it may depend on the arrangements for turning the Mail Van round for its return journey.

Hints for the Gauge "0" Operator—

(*Continued from page 35*)

finishes up the trip with only the Goods Brake Van remaining.

This is just one of the many kinds of train you can run on a Hornby clockwork layout. You will find there is plenty of variety in rolling stock, particularly the goods types listed in the No. 50 range. Cattle or coal, general goods or timber, and many other things besides, can be the traffic that you deal with in suitable Wagons or Vans. Don't forget the Goods Brake Van at the end of the train and remember to see that it carries a tail lamp and the two side lamps that are sold with it. Your No. 40 Tank Locomotive, too, can display its own headlamps in the correct positions.

Coaster Commentary—

(*Continued from page 41*)

operations, and many of the older ships have been scrapped. However, the Esso Petroleum Co., Ltd. saw a use for four of these 4,352-ton ships which they purchased in 1956, and brought them into service in British coastal waters under their new names of *Esso Chelsea, Esso Fulham, Esso Lambeth and Esso Wandsworth.* Each has a dead-weight of 5,400 tons, a length of 366 feet, a noticeable trunk deck and, so far as recognition purposes are concerned, they are virtually sister ships.

The Pram and Pushchair Railway—

(*Continued from page 9*)

good service to connect them, pays off to this day in catering for the passenger, for the prams and pushchairs start coming aboard in droves.

The first wave of invasion by these small vehicles comes at Ebley Crossing Halt (my log shows five pushchairs and one pram taken aboard) and so it is again, but with variations in the numbers, at Cashes Green and Downfield Crossing Halts. On the final stretch to Stroud, not only the luggage compartment but also the whole of the gangway is blocked as solidly with babies' prams as is Regent Street with cars and buses at the rush hour.

* * * *

It is a grand sight to see so well filled a train and it is no less pleasing to find that the journey meets with the hearty approval of the juveniles. The toddlers, of course, love railway travel and get up on the seats to get a better view of the scenery.

That is only to be expected. But what one cannot bargain for with babes-in-arms or prams is that they will remain quiet. That not a single one cried at any point is a sign that the babies of the Stroud district are an unusually contented collection or that, acting up to the dictum of the writer C. Hamilton Ellis, the branch line train welcomes the returning traveller back like an old nurse. This particular train has all the skill in soothing that is part of the stock in trade of the good nurse. I like to think the latter explanation is the right one.

At Stroud comes a mass exodus and the platform is full of the prams and pushchairs gathered up en route in a way no road service could have accomplished so successfully. While the engine takes water, the guard leans back and mops his brow after the effort of squeezing along the gangway to issue tickets from his bell punch board, bus conductor fashion, to the many passengers who have come on at halts.

* * * *

The rest of the trip to Chalford is comparatively uneventful, but on arrival one sees in the waiting room an inspired summing up of the features which makes the Pram and Pushchair Railway the efficient and go-ahead concern it is. This is a shield won in 1924 by Great Western ambulance men and setting out the qualities needed of the successful first-aider. They are specified as "Tact, Resource, Dexterity, Sympathy, Perseverance, Discrimination, Explicitness and Observation". It is a tall order to expect an ambulance man, or anyone else, to live up to so demanding a list of virtues, but one feels that, in running a rural railway in the way I have described, the Old Great Western applied these qualities. One is even more pleased to see that British Railways, as now constituted, is proving in this instance worthy of its inheritance.

Fireside Fun

Boy (returning from school): Ma, I learned to write today!

Mother: What have you learned to write, son?

Boy: Don't know yet. I ain't learned to read.

"—and thanks for lending me this to get home on."

Chief of Police: How would you go about breaking up a mob?

New recruit to Police Force: Take up a collection.

* * * *

A villager when asked to direct a traveller replied as follows:

"Go up the Downs, keep straight along the crooked lane, go around the square and when you turn to the left, you're right."

* * * *

The cannibals stoked up the fire under the pot in which an explorer was being cooked. The chief came up and asked the victim, "Do you have anything to say?"

"Yes," the explorer said, "I am smoking more now and enjoying it less!"

* * * *

"You pay a small deposit," said the salesman, "and then make no more payments for six months."

"Who told you about us?" demanded the lady of the house.

The strong man of a travelling circus billed himself as "Hercules the Second", and was much put out when he heard that a local farmer had boasted that he could break him in two. Taking one of the horses from the ring, he rode out to the farmer's house.

"What's this you have been saying you could do to me?" he bellowed.

The farmer didn't say a word. He just seized the intruder, hurled him bodily over the fence, and went on with his ploughing.

Hercules picked himself up and gazed ruefully at the farmer.

"Had enough?" called the latter. "Or have you anything to say?"

"Yes", replied Hercules sadly, "but would you be kind enough to throw me my horse."

* * * *

"Why did the boy tiptoe past the medicine chest?"

"Because he didn't want to wake up the sleeping pills."

"Isn't he cute; he got his guard's outfit for Christmas."

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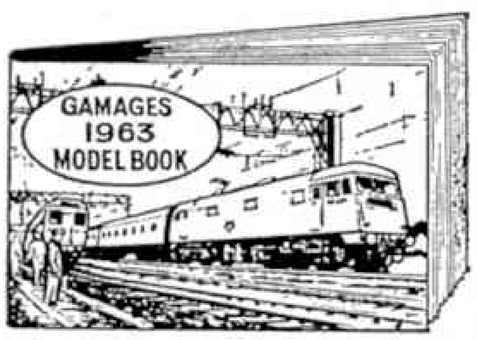

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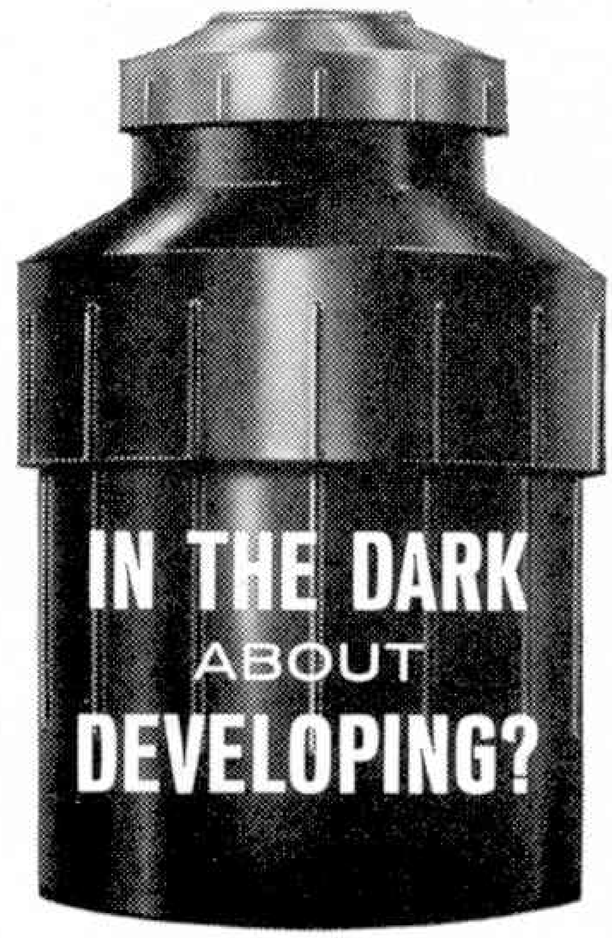

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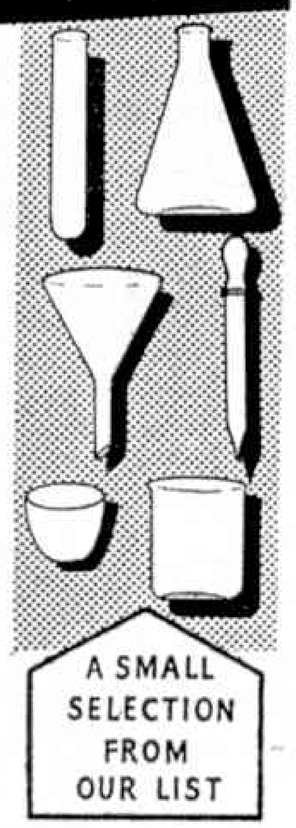

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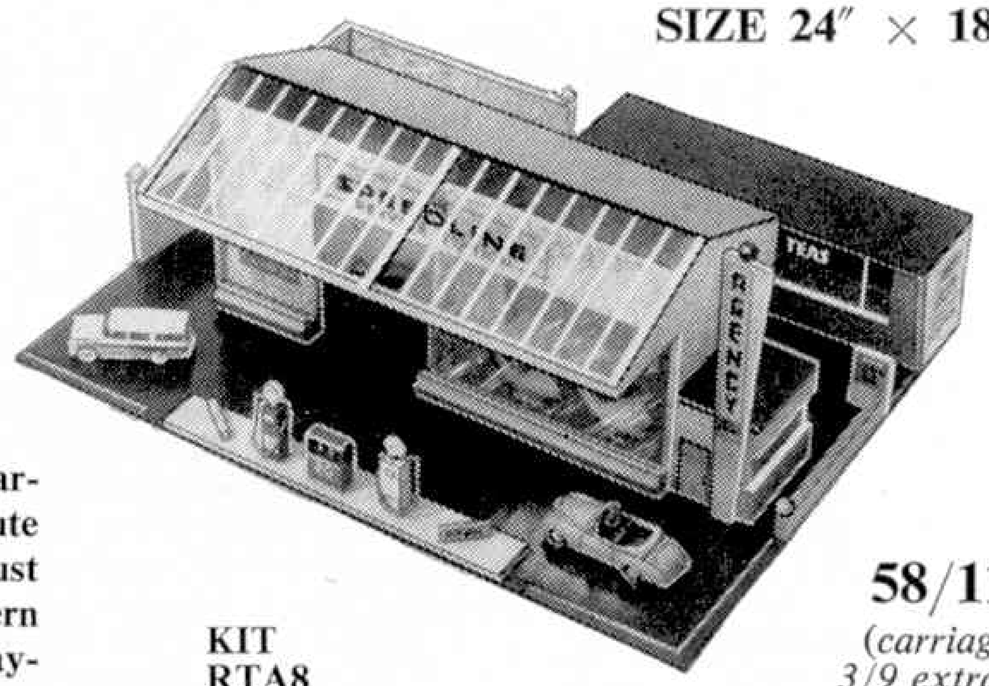

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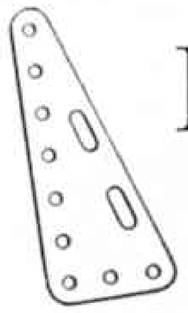

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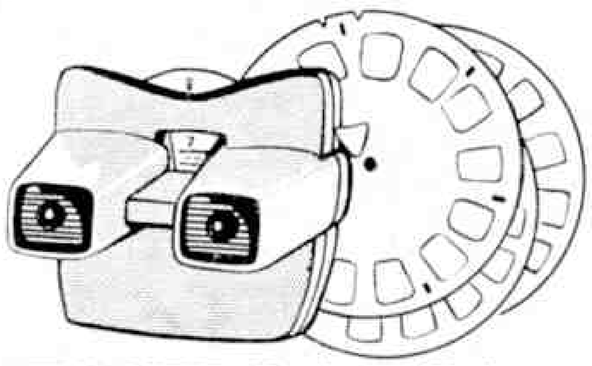

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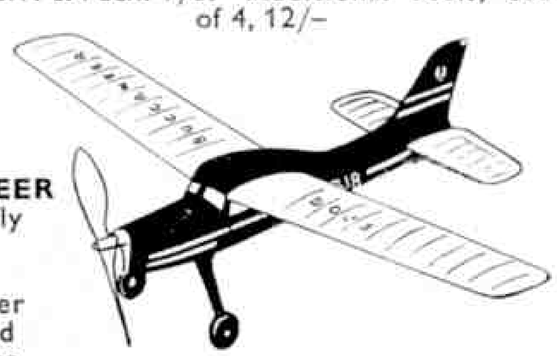

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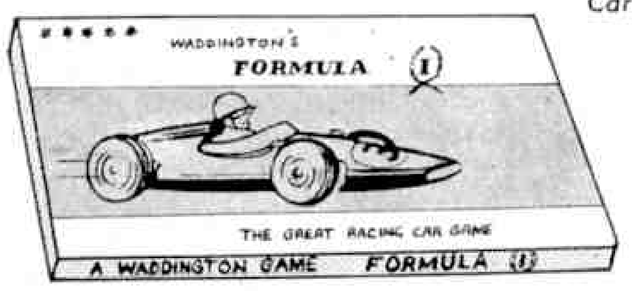

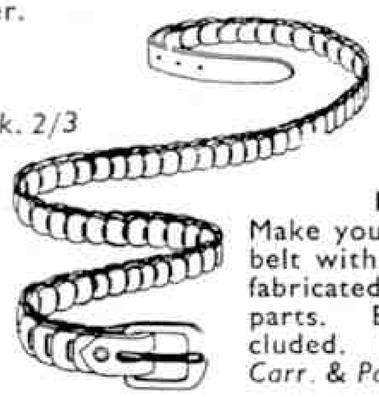

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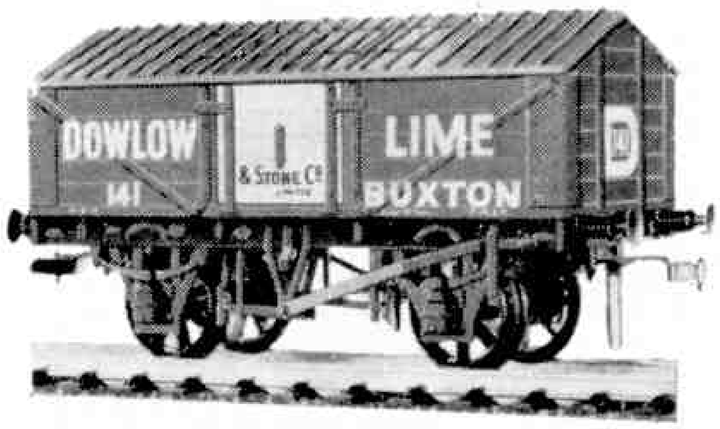

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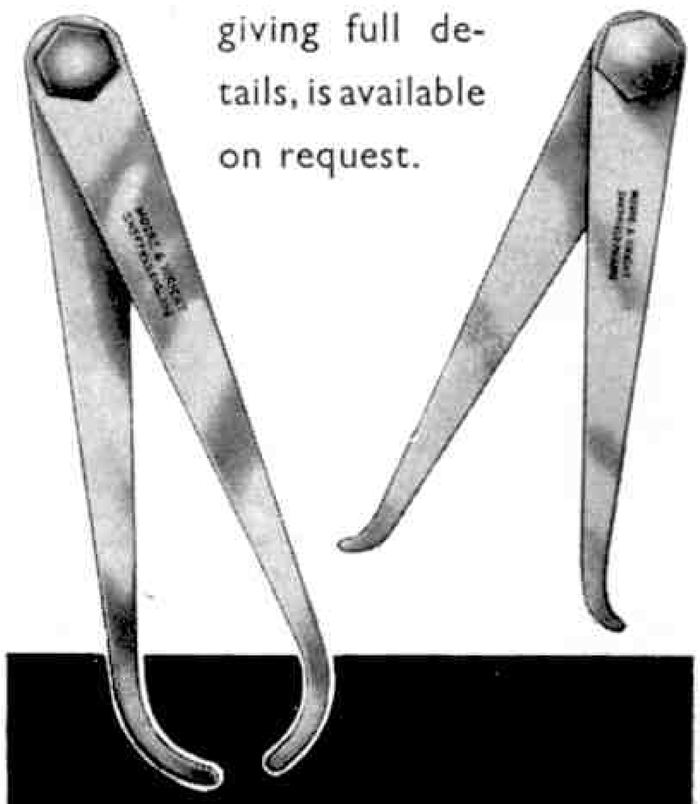

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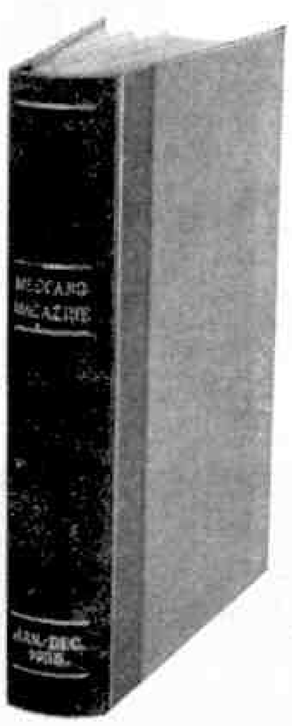

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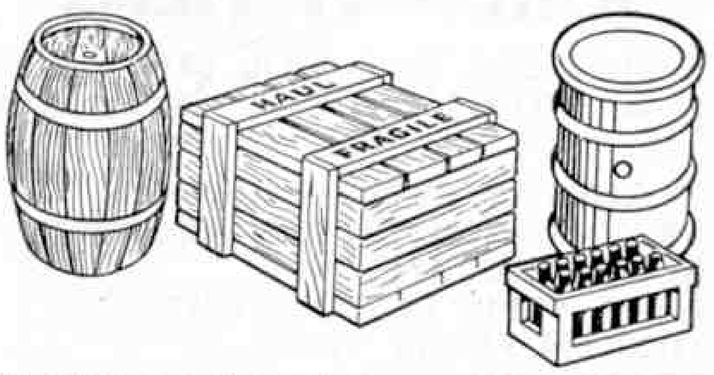

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No. 8a ,, No. 8 ,, No. 9 . .	5	8	3
No. 9a ,, No. 9 ,, No. 10 . .	26	2	6
Meccano Gears Outfit 'B'		18	3
Meccano Mechanisms Outfit	1	12	11

NOTICE

These Accessory Outfits are of the latest, improved, type. If your **present main Outfit** is not of the latest type (packed in Green, White and Red striped Carton) you will need some additional Parts to bring it up to date before you can build the models shown in the appropriate Section of the new Models Book packed with these Outfits. Ask your dealer for particulars.

MADE BY MECCANO LIMITED

Holidays abroad by motor coach

DINKY TOYS No. 953—CONTINENTAL TOURING COACH

Paris, Rome, Brussels, Vienna . . . all these cities, and many more, are visited every year by hundreds of coaches similar to the prototype of this Dinky Supertoy. The model itself is fitted with specially tinted windows, seats and steering wheel and is finished in a delightful pale blue gloss with white roof. The words "Dinky Continental Tours" appear on each side. Length 8¾ in. U.K. Price **13/6**

The last word in realism!

DINKY TOYS No. 277 SUPERIOR CRITERION AMBULANCE WITH FLASHING LIGHT

With siren wailing and roof-light flashing the ambulance rushes its patient to hospital! This striking miniature also is fitted with a red roof-light which actually flashes as the vehicle is pushed along. Realistic figures of driver and attendant occupy the front seats. These refinements are additional to the regular Dinky Toys features—Prestomatic steering, windows, suspension and seats.
Length 5 in. U.K. Price **8/9**

Battery No. 036 (Vidor V16) is not supplied with the model, but may be purchased separately. Price **5d.**

AVAILABLE LATER OVERSEAS

DINKY TOYS

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